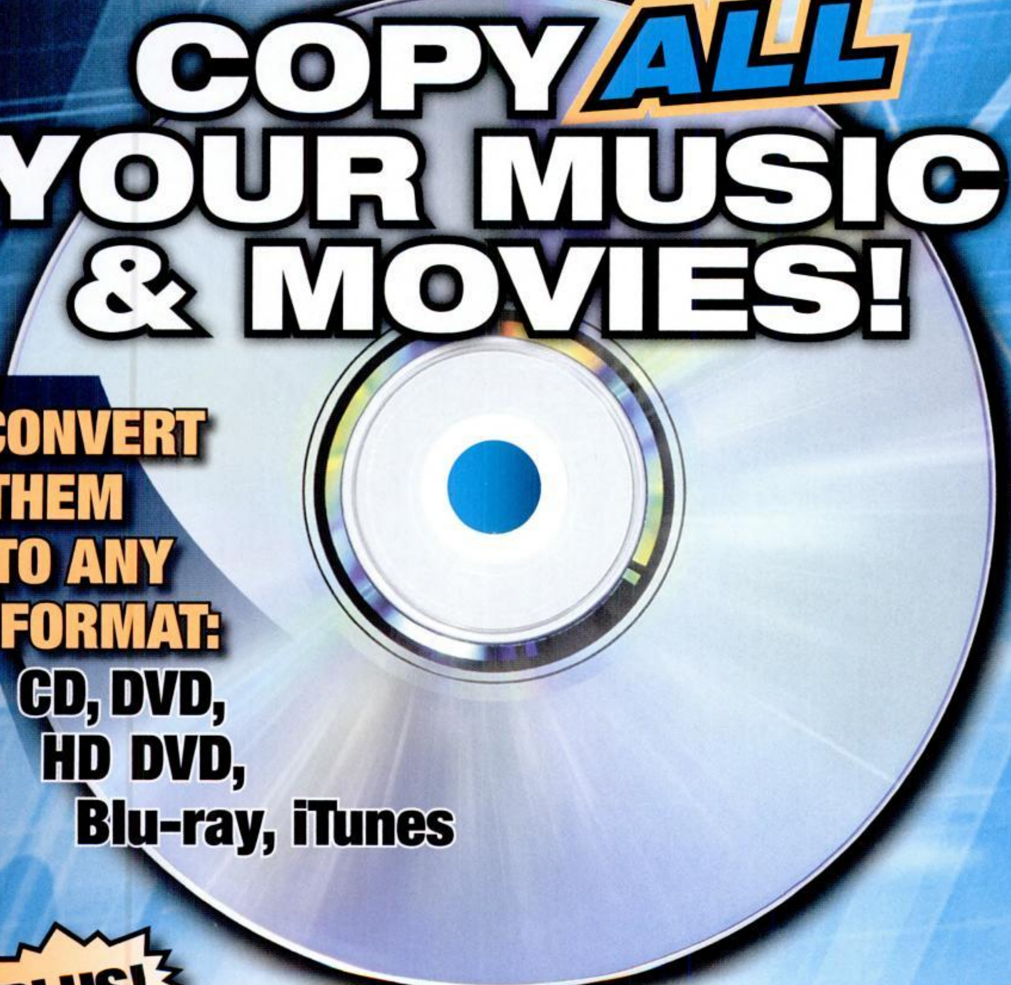
MAXIMUMPC ***Presents the Ultimate***

18 HARD-HITTING REVIEWS!

Digital Media
HOW-TO GUIDE

SPECIAL ISSUE
FALL 2007



COPY ALL YOUR MUSIC & MOVIES!

CONVERT THEM TO ANY FORMAT:
CD, DVD, HD DVD, Blu-ray, iTunes

INSIDE

- **PVR BATTLE** TiVo vs Media Center!
- **WATCH NET TV** For FREE!
- **YOUTUBE SECRETS** Unveiled!
- **EDIT & SHARE** Movies with Vista!
- **GET CONTROL OF** Your MP3 Collection!

PLUS!

Choose the Perfect Home Theater PC!

Create High Dynamic Range Images!

Widescreen LCD Buyers Guide!

DISPLAY UNTIL 12/11/07

$9.99US $12.99CAN

Future
MEDIA WITH PASSION

solution?

Labor Day Specials:

September 3rd through October 31, 2007

DOMAINS

.us

Act now and save!

Create your own .us domain. For a limited time, America's internet address is on sale. All domain packages include free private registration.

$2.99 first year

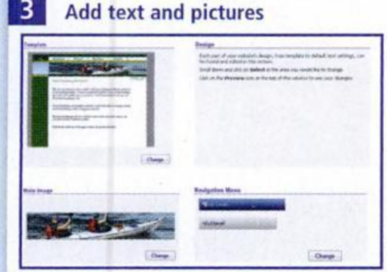
SERVERS

Need a business server?

Sign up now and we'll waive the $99 setup fee. Save 50% on the first 3 months when you sign up for a 2 year server contract.

Save 50%**

3 Add text and pictures


Template
Design
Change
Main Image
Navigation Menu
Change
Change

4 Publish your website

WebsiteBuilder
Home
Equipment
Pictures
Directions
Contact

Kate's Kayaking Adventure!

This site was started in order so that I could keep my family and friends updated as to my kayaking activities. It's also a journal of my first few years of trips kayaking the rough, but beautiful, open ocean shores. I took up kayaking 4 years ago and I've loved every minute of it.

Ocean Kayaking is increasingly popular for coastal explorations, camping, cruising and bird watching as well as being good exercise.

My next kayaking trip will be to Ireland to discover the sea-caves, islands

Visit us now **1and1.com**

1&1

This One
FBEW-SJ7-7S55

CYBERPOWER RECOMMENDS WINDOWS VISTA™ HOME PREMIUM

All Desktop systems come with 3 year Limited Warranty + lifetime toll free 24-7 techsupport

CREATE THE PC OF YOUR DREAMS

Unleash the power

CyberPOWER Inc.

Order Toll Free 800-707-0393 www.cyberpowerpc.com

Intel®, Intel® logo, Intel Inside®, Intel Inside® logo, Intel® Core™ 2 Duo, Intel® Core™ Duo, Intel® Centrino®, Intel® Centrino® logo, Celeron®, Intel® Xeon™, Intel® SpeedStep®, Itanium®, Pentium®, and Pentium® III Xeon™ are trademarks or registered trademarks of Intel® Corporation or its subsidiaries in the United States and other countries. All prices are subject to change without notice or obligation. CyberPower is not responsible for any typographical and photographic errors. Copyright © 2006 CyberPower. All rights reserved.

Copyrighted material

Intel® Core™ 2 Duo Processor	
(8MB Cache, 1333Mhz FSB)	
Extreme QX6850 3.00Ghz	$ 2559
(8MB Cache, 1066Mhz FSB)	
Quad Q6700 2.66Ghz	$ 2039
Quad Q6600 2.40Ghz	$ 1745
(4MB Cache, 1333Mhz FSB)	
E6850 3.00Ghz	$ 1745
E6750 2.66Ghz	$ 1655
E6550 2.40Ghz	$ 1629

Gamer Infinity SLI™ Ultra

NVIDIA® NVIDIA®® 650i SLI™ Chipset MB w/ Dual 16X PCI-E
Genuine Windows® Vista Home Premium
Corsair® 2GB PC-6400 DDR2-800 Dual Channel Memory
500GB 7200RPM SATA-II 3.0Gb/s 16M Cache Ultra Fast HD
2x NVIDIA® Geforce® 8800GTS 320MB DDR3 Over 80% Performance Gain over single video card solution. Powered by EVGA
20x DVD+/-RW Drive & 16x DVD-ROM
Creative Cambridge Inspire P7800 7.1 Surround Sound System
Logitech® Keyboard & Microsoft Optical Intelli Explorer Mouse
Aluminum X-Jupiter Full tower Gamer Server Case 500 Watt
COOLERMASTER AQUAGATE MINI LIQUID COOLING SYSTEM
Free 802.11G Wireless PCI Network Adaptor
Add ViewSonic VG2030WM 20" WSXGA Active Matrix Gaming LCD Display for $294

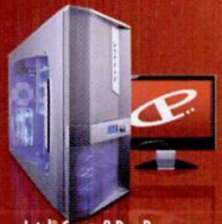
$1629

Intel® Core™ 2 Duo Processor	
(8MB Cache, 1333Mhz FSB)	
Extreme QX6850 3.00Ghz	$ 2065
(8MB Cache, 1066Mhz FSB)	
Quad Q6700 2.66Ghz	$ 1545
Quad Q6600 2.40Ghz	$ 1249
(4MB Cache, 1333Mhz FSB)	
E6850 3.00Ghz	$ 1249
E6750 2.66Ghz	$ 1159
E6550 2.40Ghz	$ 1135

Gamer Infinity SLI™ GS

NVIDIA® nForce® 650i SLI™ Chipset MB w/ Dual 16X PCI-E
Genuine Windows Vista™ Home Premium
Corsair® 2GB PC-6400 DDR2-800 Dual Channel Memory
320GB 7200RPM SATA-II 3.0Gb/s 16MB Cache Ultra Fast HD
(2) NVIDIA® Geforce® 8600 GT 256MB DDR 3 16X PCI-E. Over 80% Performance Gain over single video card solution. Powered by EVGA
20x DVD+/-RW Drive & 16x DVD-ROM
High Definition 7.1 Surround Sound & 600 Watt Subwoofer Speaker System
Logitech Keyboard and Optical Wheel Mouse
Sigma Gaming Shark 9-Bay Gaming Tower 420 Watt
Free 802.11G Wireless PCI Network Adaptor
Add ViewSonic VG2230WM 22" SXGA Active Matrix Gaming LCD Display for $368

$1135

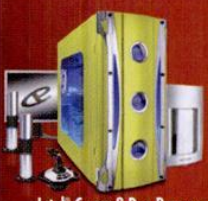


Intel® Core™ 2 Duo Processor	
(8MB Cache, 1333Mhz FSB)	
Extreme QX6850 3.00Ghz	$ 1915
(8MB Cache, 1066Mhz FSB	
Quad Q6700 2.66Ghz	$ 1399
Quad Q6600 2.40Ghz	$ 1109
(4MB Cache, 1333Mhz FSB)	
E6850 3.00Ghz	$ 1109
E6750 2.66Ghz	$ 1015
E6550 2.40Ghz	$ 995

Gamer Infinity SLI™ GT

NVIDIA® nForce® 650i SLI™ MB w/ Dual 16X PCI-E
Genuine Windows Vista™ Home Premium
Corsair® 2GB PC-6400 DDR2-800 Dual Channel Memory
320GB 7200RPM SATA-II 3.0Gb/s 16MB Cache Ultra Fast HD
(2) NVIDIA® Geforce® 8500 GT 256MB DDR. Over 80% Performance Gain over single video card solution.Powered by EVGA
20x DVD+/-RW Drive & 16 DVD ROM
High Definition 7.1 Surround Sound & 600 Watt Subwoofer Speaker System
Logitech 104 Keyboard and Optical Wheel Mouse
Aluminum X-Jupiter Jr Mid-Tower Case w/ See Through Window
Free 802.11G Wireless PCI Network Adaptor
Add ViewSonic Q7B 17" Active Matrix Gaming LCD Display for $195

$995



Intel® Core™ 2 Duo Processor	
(8MB Cache, 1333Mhz FSB)	
Extreme QX6850 3.00Ghz	$ 1779
(8MB Cache, 1066Mhz FSB)	
Quad Q6700 2.66Ghz	$ 1265
Quad Q6600 2.40Ghz	$ 965
(4MB Cache, 1333Mhz FSB)	
E6850 3.00Ghz	$ 965
E6750 2.66Ghz	$ 875
E6550 2.40Ghz	$ 849

Gamer Infinity SLI™ Basic

NVIDIA® nForce® 650i SLI™ MB w/ Dual 16X PCI-E
Genuine Windows Vista™ Home Premium
Corsair® 1024MB PC-6400 DDR2-800 Dual Channel Memory
250GB 7200RPM SATA-II 3.0Gb/s 8MB Cache Ultra Fast HD
(2) NVIDIA® Geforce® 8400 GS 256MB DDR. Over 80% Performance Gain over single video card solution. Powered by EVGA
20x DVD+/-RW Drive
High Definition 7.1 Surround Sound & 600 Watt Subwoofer Speaker System
Logitech 104 Keyboard and Optical Wheel Mouse
Turbo X-Cruiser Case 420Watt w/ See Through Window
Free 802.11G Wireless PCI Network Adaptor
Add ViewSonic Q19WB 19" 5ms Active Matrix SXGA Gaming LCD Display for $217

$849

intel
Core 2
Extreme
inside™

Hard core. Quad-core.

Free shipping + 1 yeat 24/7 Toll Free Techsupport

Gamer Xplorer X5-7900

Intel® Centrino® 2 Duo Processor Technology
- Intel® PRO™ Wireless 4965 AGN
- Intel® 965GM Chipset

Genuine Windows Vista™ Home Premium
2048 MB DDR-II PC5300 667 Memory
160GB SATA150 Hard Drive
15.4" WSXGA TFT Display 1280x800 pixels
8x DVD+/-RW Drive
1000/100/10 Network, 56K V.92 Fax/Modem
NVIDIA® Geforce® Go 8600 GT 512MB MMX II w/ HDMI
4-in-1 Built-in Media Card Reader, 3x USB 2.0 Ports, 1 IEEE-1394 Firewire Port, 1 PCMCIA Type II Slot, 3 Hours Battery Life, Weight only 8 Lbs, Free Carrying Case

Intel® Core™ 2 Duo Processor	
(800Mhz FSB)	
T7700 4MB L2 Cache, 2.40Ghz	$ 1519
T7500 4MB L2 Cache, 2.20Ghz	$ 1289
T7300 4MB L2 Cache, 2.00Ghz	$ 1205
T7100 2MB L2 Cache, 1.80Ghz	$ 1159

$1159

Free shipping

Gamer Xplorer C90

Intel® Core™ 2 Duo Processor Technology
- Intel® 945P Chipset MB
- Intel® PRO™ Wireless 3945AGB

Genuine Windows Vista™ Home Premium
2048 MB DDR-II PC5300 667 Memory
160GB SATA150 Hard Drive
15.4" WXGA TFT Display 1440 x 900 pixels
8x DVD+/-RW Drive
1000/100/10 Network, 56K V.92 Fax/Modem
NVIDIA® Geforce® Go 8600 GT 512MB MMX II w/HDMI
3-in-1 Built-in Media Card Reader, 3x USB 2.0 Ports, 1 IEEE-1394 Firewire Port, 2 MP Build in Webcam & Finger Print Reader, 2.5 Hours Battery Life, Weight only 6.25 Lbs, Free Carrying Case

Intel® Core™ 2 Duo Processor	
(4MB Cache, 1066Mhz FSB)	
Extreme X6800 2.93Ghz	$ 2439
E6700 2.66Ghz	$ 1725
E6600 2.40Ghz	$ 1619
E6420 2.13Ghz	$ 1579
E6320 1.86Ghz	$ 1555
(2MB Cache, 800Mhz FSB)	
E4300 1.8Ghz	$ 1485

Free shipping

$1485

4802 Littlejohn Street, Baldwin Park, CA 91706 T: 626.813.7730 F: 626.813.3810
Technical Support: 877.876.4965 Hour: M-F 8:30am - 6:00pm Sat 9:30am - 3:00pm

NVIDIA®, nForce®, GeForce®, SLI™ are trademarks or registered trademarks of NVIDIA Corporation or its subsidiaries in the United States and other countries.
CyberPower PCs use genuine Microsoft® Windows® • www.microsoft .com/piracy/howtotell

CyberPOWER Inc.

AMD
64
Athlon™ X2

AMD
Smarter Choice

Do more in less time with AMD Athlon™ 64 X2 dual-core processor.

AEON 8015

NVIDIA® nForce™ 500 SLI™ Chipset Dual PCI Express MB
Genuine Windows® Vista™ Home Premium
Corsair 1024MB DDR2-800 Memory
250GB SATA II 7200RPM 3Gb Hard Drive
18x Double Layer DVD±R/±RW Drive
12-in-1 Media Card Reader
2X NVIDIA® GeForce™ 8500GT 256MB – SLI™ Enabled
8 Channel Surround 3D Premium Sound
10/100/1000 MBps Ethernet LAN
Logitech Deluxe Keyboard & Optical Mouse
Free Wireless 802.11g 54MBps Network Adapter

FREE! 1GB Pen Drive **$709**

AMD Athlon™ 64 X2 dual-core Processor	
4000+ (Socket AM2)	$709
4400+ (Socket AM2)	$729
4800+ (Socket AM2)	$749
5000+ (Socket AM2)	$759
5200+ (Socket AM2)	$769
5600+ (Socket AM2)	$789
6000+ (Socket AM2)	$809

AEON 8070

NVIDIA® nForce™ 570 SLI™ Chipset Dual PCI Express MB
Genuine Windows® Vista™ Home Premium
Corsair 2GB DDR2-800 Memory
320GB SATA II 7200RPM 3Gb Hard Drive
18x Double Layer DVD±R/±RW Drive; 16x DVD-Rom
12-in-1 Media Card Reader
NVIDIA® GeForce™ 8800GTX 768MB
8 Channel Surround 3D Premium Sound
10/100/1000 MBps Ethernet LAN
Logitech Deluxe Keyboard & Optical Mouse
Free Wireless 802.11g 54MBps Network Adapter

FREE! 1GB Pen Drive **$1349**

AMD Athlon™ 64 X2 dual-core Processor	
4000+ (Socket AM2)	$1349
4400+ (Socket AM2)	$1369
4800+ (Socket AM2)	$1389
5000+ (Socket AM2)	$1399
5200+ (Socket AM2)	$1409
5600+ (Socket AM2)	$1429
6000+ (Socket AM2)	$1449

CRAFT 9012

15.4" Wide Screen 16:10 WXGA TFT LCD 1280x800 Display
Genuine Windows® Vista™ Home Premium
AMD® Turion™ 64 X2 Mobile Technology
- AMD® PowerNow! Technology
- HyperTransport Technology
- Enhanced Virus Protection Technology

Mobile NVIDIA® GeForce™ Go 7600 256MB DDR Video
1GB DDR2-667 Memory
Removable 8x DVD±R/±RW / CD-RW Drive
100GB 5400RPM Ultra-ATA 100 Hard Drive
Built-in fingerprint security device
10/100/1000 MB Ethernet LAN & 56K Modem

FREE! 1GB Pen Drive **$1129**

AMD Turion™ 64 X2 Mobile Technology Processor	
TL-56 Processor	$1129
TL-64 Processor	$1239
TL-66 Processor	$1339

Wireless 802.11g 54MBps Mini-PCI Network
Built-in 1.3 Mega Pixels CMOS Camera
4x USB 2.0 & 1x Firewire IEEE-1394 Ports
Free Deluxe Carrying Case

CRAFT 9075

17" Wide Screen 16:10 WSXGA+ TFT LCD 1680x1050 Display
Genuine Windows® Vista™ Home Premium
AMD® Turion™ 64 x2 Mobile Technology
- AMD® PowerNow! Technology
- HyperTransport Technology
- Enhanced Virus Protection Technology

Mobile NVIDIA® GeForce™ Go 7600 256MB DDR Video
2GB DDR2-667 Memory
Removable 8x DVD±R/±RW Drive
100GB 5400RPM Ultra-ATA100 Hard Drive
10/100/1000MB Ethernet LAN & 56K Modem

Wireless 802.11g 54MBps Mini-PCI Network
4x USB 2.0 & 1x Firewire IEEE-1394 Ports
Free Deluxe Carrying Case

FREE! 1GB Pen Drive **$1349**

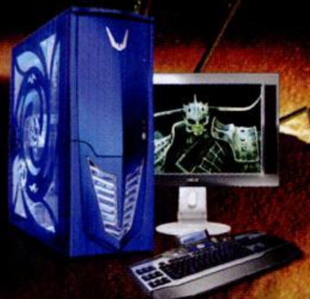
AMD Turion™ 64 Mobile Technology Processor	
TL-56 Processor	$1349
TL-64 Processor	$1459
TL-66 Processor	$1559

WWW.AEONCRAFT.COM

Aeoncraft recommends Windows Vista™ Home Premium

intel
Core™ 2
Extreme
inside™

Hard core.
Quad-core.



AEON 7035

ASUS® P5N-E SLI™ nForce™ 650i Chipset MB
Genuine Windows® Vista™ Home Premium
Corsair 2GB DDR2-800 Memory
500GB SATA II 7200RPM 3Gb Hard Drive
18x Double Layer DVD±R/±RW Drive
12-in-1 Media Card Reader
2X NVIDIA® GeForce™ 8800GTS 320MB – SLI™ mode
8 Channel Surround 3D Premium Sound
10/100/1000 MBps Ethernet LAN
Logitech Deluxe Keyboard & Optical Mouse
Free Wireless 802.11g 54MBps Network Adapter

FREE! 1GB Pen Drive **$1429**

Intel® Core 2™ Duo Processor E6550	$1429
Intel® Core 2™ Duo Processor E6750	$1449
Intel® Core 2™ Duo Processor E6850	$1539
Intel® Core™ 2 Quad Processor Q6600	$1539
Intel® Core™ 2 Quad Processor Q6700	$1799
Intel® Extreme Quad-Core Processor QX6850	$2269

AEON 7030

ASUS® P5N-E SLI™ nForce™ 650i Chipset MB
Genuine Windows® Vista™ Home Premium
Corsair 1GB DDR2-800 Memory
320GB SATA II 7200RPM 3Gb Hard Drive
18x Double Layer DVD±R/±RW Drive
12-in-1 Media Card Reader
2X NVIDIA® GeForce™ 8600GT 256MB – SLI™ mode
8 Channel Surround 3D Premium Sound
10/100/1000 MBps Ethernet LAN
Logitech Deluxe Keyboard & Optical Mouse
Free Wireless 802.11g 54MBps Network Adapter

FREE! 1GB Pen Drive **$929**

Intel® Core 2™ Duo Processor E6550	$929
Intel® Core 2™ Duo Processor E6750	$949
Intel® Core 2™ Duo Processor E6850	$1039
Intel® Core™ 2 Quad Processor Q6600	$1039
Intel® Core™ 2 Quad Processor Q6700	$1299
Intel® Extreme Quad-Core Processor QX6850	$1769

AEON 7010

ASUS® P5N-E SLI™ nForce™ 650i Chipset MB
Genuine Windows® Vista™ Home Premium
Corsair 1GB DDR2-800 Memory
250GB SATA II 7200RPM 3Gb Hard Drive
18x Double Layer DVD±R/±RW Drive
12-in-1 Media Card Reader
2X NVIDIA® GeForce™ 8500GT 256MB – SLI™ mode
8 Channel Surround 3D Premium Sound
10/100/1000 MBps Ethernet LAN
Logitech Deluxe Keyboard & Optical Mouse
Free Wireless 802.11g 54MBps Network Adapter

FREE! 1GB Pen Drive **$829**

Intel® Core 2™ Duo Processor E6550	$829
Intel® Core 2™ Duo Processor E6750	$849
Intel® Core 2™ Duo Processor E6850	$929
Intel® Core™ 2 Quad Processor Q6600	$929
Intel® Core™ 2 Quad Processor Q6700	$1199
Intel® Extreme Quad-Core Processor QX6850	$1669

CRAFT 9035

15.4" Wide Screen 16:10 WXGA TFT LCD 1440x900 Display
Genuine Windows® Vista™ Home Premium
Intel® Core™ 2 Duo Mobile Processor
Mobility NVIDIA® GeForrce 8400 256MB
512MB DDR2-667 Memory
Removable 8x DVD±R/±RW Drive
80GB 5400RPM S-ATA Hard Drive
10/100/1000MB Ethernet LAN & 56K Modem
Built-in 3-in-1 Media Card Reader/Writer
Built-in CMOS Digital Web Video Camera
Wireless 802.11g 54MBps Mini-PCI Network
4x USB 2.0 & 1x Firewire IEEE-1394 Ports
Free Deluxe Carrying Case

FREE! 1GB Pen Drive **$999**

Intel® Core 2™ Duo Processor

T7100 (2MB L2 Cache, 1.8GHz)	$999
T7300 (4MB L2 Cache, 2.0GHz)	$1049
T7500 (4MB L2 Cache, 2.2GHz)	$1119
T7700 (4MB L2 Cache, 2.4GHz)	$1339

Call Toll Free 800.228.9395

Intel, the Intel logo, Intel Core and Core Inside are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.
NVIDIA, nForce, SLI are trademarks or registered trademarks of NVIDIA Corporation or its subsidiaries in the United States and other countries.

SUPER ★ TALENT™

www.supertalent.com

LIGHTNING FAST

SUPER ★ TALENT

DDR3 MEMORY

World's Fastest DDR3

Extreme Performance DDR3 kits made in the USA by America's leading memory module manufacturer. Built with selected ultra fast DDR3 chips in our state-of-the-art Silicon Valley factory. Hand tested as a matched pair in an enthusiast motherboard at extreme clock speeds and low latencies. Backed with our lifetime warranty. This is what makes Super Talent DDR3 the memory of choice among world champion overclockers and performance enthusiasts.

"Super Talent is no doubt a World Leading Manufacturer of High-end memory"

-World Champion Overclocker Victor Wang

"The best modules in this roundup are from Super Talent. ...the Super Talent memory wins all the benchmarks at every speed from 1333 up."

-Anandtech

ANANDTECH

Available through:

eWIZ
www.ewiz.com

newegg.com®

Super Talent USA Headquarters
Tel: 1.408.934.2560 Email: sales@supertalent.com

Copyrighted material

Release Notes

Have It Your Way!

While I was putting together this issue, I just couldn't get a certain song out of my head. We've all experienced this at one time or another, and usually the song in question isn't a good one—at least for me. Typically, it's one of the most annoying songs ever recorded.

This one was no exception: In fact, it's straight out of the '70s, and from a Burger King commercial of all things. (A fact made stranger given that I haven't eaten at a BK now for probably 10 years—I think I can still taste it.) If you're in my age bracket or close, you know it: "Hold the pickles, hold the lettuce, special orders won't upset us... Have it your way..." yadda yadda. For the full retro experience, go to *www.retrojunk.com/details_commercial/2728/*.

Now that I've got the song playing in your heads...back to my point. I can only guess the reason for this aural torture was a subliminal protest against the constraints of DRM, proprietary media formats, and the hassles that come with simply trying to enjoy—or safeguard—music and movies we've paid for. If we pony up $20 for a DVD, we think we should be able to format it to watch on our favorite portable media device—or rather, have it our way. The anchor story in this issue, "Copy & Convert," is aimed at providing you with that freedom. It's your media: enjoy it how you want to enjoy it! At the very least, you should be able to make archival copies of your music and movies, and we arm you with the knowledge to do so.

We'll also show you how to organize your rapidly exploding MP3 collection, watch TV and listen to radio over the 'net for free, make stunning HDR digital images, and create, edit, and burn movies with Vista. And since YouTube is all the rage these days, we show you some tricks to maximize its entertainment potential.

We also have in-depth home-theater PC and big-screen LCD buyer's guides, and reviews of the latest digital toys—all of which will help you ensure you get the most for your multimedia buck.

It's a digital world, and we think that's a good thing—once we rip, convert, edit, recode, stream, and archive everything, that is.

Remember, the point of this issue is not to encourage or support piracy. It's to give you the power to enjoy your purchased digital media **your** way.

—Steve Klett

CONTENTS **SPECIAL ISSUE, FALL 2007**

DIGITAL MEDIA HOW-TO GUIDE

10

Head2Head ITUNES STORE vs. ZUNE MARKETPLACE — FIGHT!

12 **Copy Music & Movies**

How to back up all your media—every step explained!

26 **ITUNES CHALLENGE!**

Can you hear the difference between 128Kb/s and 256Kb/s ACC songs?

35 **HOW TO ORGANIZE YOUR MP3s**

MediaMonkey's your friend; we show you why...

40 **HOME THEATER PCs**

Can any of the latest machines challenge TiVo?

52 **HOW TO WATCH 'NET TV FOR FREE!**

And listen to your favorite radio stations, too...

LIBRARY
Music
Movies
TV Shows
Podcasts
Radio
STORE
iTunes Store
Purchased
PLAYLISTS
THE SHINS
New Album + Exclusives
UGLY BETTY
YO LA TENGO
Exclusive Live Session

presents
INVASION OF THE HOME THEATER PC

SUPE UP YOUR PC

WITHOUT WAITING FOR THE GEEKS TO ARRIVE

CHECK OUT THE COVER CD FOR **FREE SCANS!**

Keep your PC running as good as the day you bought it. Our automated mechanics will put your PC through the paces with a complete analysis of its performance, reliability and security. And while we optimize your PC's performance, we'll also keep it healthy with a variety of check-ups and diagnostics that will help you eliminate any problems that might cause headaches down the road.

Don't wait for a tech-head. Take your PC to pcpitstop.com/max

FREE PERFORMANCE SCAN
PC Pitstop Optimize®
Find out if your PC is running at peak performance.

FREE PRIVACY SCAN
PC Pitstop Erase®
Discover what tracks you are leaving on your PC.

FREE SPYWARE SCAN
PC Pitstop Exterminate®
Identify spyware on your PC and assess your overall threat level.

FREE DISK HEALTH SCAN
PC Pitstop Disk MD®
The doctor is in. Evaluate the health of your hard drives.

pcpitstop.com/max

Energize Internet Speeds • Boost System Performance • Maximize Hard Drive Space

PC Pitstop
pcpitstop.com/max

Digital Media How-to Guide

EDITORIAL
EDITOR IN CHIEF **Steve Klett**
CONTRIBUTING WRITERS **Will Smith, Michael Brown, Gordon Ung, Katherine Stevenson, David Murphy, Rick Broida, John Buechler, Tanya Combrinck, Kris Fong, Gordon Goble, Christian Hall**
COPY EDITOR **Corey Cohen**

ART
ART DIRECTOR **Kristine Ekstrand**
COVER DESIGN **Natalie Jeday**
PHOTOGRAPHER **Mark Madeo**
CONTRIBUTING PHOTOGRAPHER **Samantha Berg**

BUSINESS
GROUP PUBLISHER **Stacey Levy**
650-238-2319, slevy@futureus.com
WESTERN AD DIRECTOR **Dave Lynn**
949-360-4443, dlynn@futureus.com
WESTERN AD MANAGER **Derek Johnson**
650-238-2327, djohson@futureus.com
EASTERN AD MANAGER **Larry Presser**
646-723-5459, lpresser@futureus.com.com
EASTERN AD MANAGER GAMES **Kristin Kelleher**
646-723-5491, kkelleher@futureus.com.com
ADVERTISING COORDINATOR **Jose Urrutia**
650-238-2498, jurrutia@futureus-inc.com
MARKETING COORDINATOR **Michael Basilio**

PRODUCTION
PRODUCTION DIRECTOR **Richie Lesovoy**
PRODUCTION COORDINATOR **Dan Mallory**

CIRCULATION
NEWSSTAND DIRECTOR **Bill Shewey**
NEWSSTAND MARKETING MANAGER **Elliott Kiger**
NEWSSTAND COORDINATOR **Alex Guzman**

FUTURE US, INC
4000 Shoreline Court, Suite 400, South San Francisco, CA 94080
www.futureus-inc.com

PRESIDENT **Jonathan Simpson-Bint**
VICE PRESIDENT/COO **Tom Valentino**
VICE PRESIDENT/CIRCULATION **Holly Klingel**
CFO **John Sutton**
GENERAL COUNSEL **Charles Schug**
PUBLISHING DIRECTOR/GAMES **Simon Whitcombe**
PUBLISHING DIRECTOR/MUSIC AND TECH **Steve Aaron**
PUBLISHING DIRECTOR/BUSINESS DEVELOPMENT **Dave Barrow**
EDITORIAL DIRECTOR/TECHNOLOGY **Jon Phillips**
EDITORIAL DIRECTOR/MUSIC **Brad Tolinski**
DIRECTOR OF CENTRAL SERVICES **Nancy Durlester**
PRODUCTION DIRECTOR **Richie Lesovoy**

Future US, Inc. is part of Future plc. Future produces carefully targeted special-interest magazines, websites and events for people who share a passion. We aim to satisfy that passion by creating titles offering value for money, reliable information, and smart buying advice, and which are a pleasure to read or visit. Today we publish more than 150 magazines, 65 websites and a growing number of events in the US, UK, France and Italy. Over 100 international editions of our magazines are also published in 30 other countries across the world.

Future plc is a public company quoted on the London Stock Exchange (symbol: FUTR).

FUTURE plc
30 Monmouth St., Bath, Avon, BA1 2BW, England
www.futureplc.com
Tel +44 1225 442244

NON-EXECUTIVE CHAIRMAN **Roger Parry**
CHIEF EXECUTIVE **Stevie Spring**
GROUP FINANCE DIRECTOR **John Bowman**
Tel +44 1225 442244
www.futureplc.com

REPRINTS: For reprints, contact Ryan Derfler, Reprint Operations Specialist, 717.399.1900 ext. 167 or email futurenetworkusa@reprintbuyer.com

SUBSCRIPTION QUERIES: Please email maxcustserv@cdsfulfillment.com or call customer service toll-free at 800.274.3421

Maximum PC ISSN: 1522-4279

58 **THE BIG PICTURE** Find the right LCD for you with our comprehensive Buyer's Guide

66 Head2Head **FLAT vs. CONE SPEAKERS — FIGHT!**

Best card trick in the world
Comments & Responses

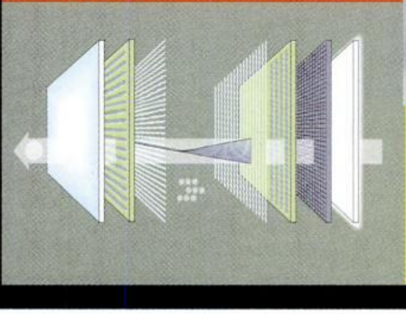
68 **HOW TO GET THE MOST OUT OF YOUTUBE!**

74 **GET STARTED WITH HDR PHOTOGRAPHY** We show you how to expose every detail like never before!

STABILIZER
OFF
ON
0.363%

80 **MAKE, EDIT & BURN MOVIES WITH VISTA!** Yes, it can all finally be done with Microsoft's latest OS...

86 **REVIEWS**



96 **HOW LCDs WORK** No, it's not magic—we take the rabbit out of the hat...

Newsstand distribution is handled by Curtis Circulation Company. Maximum PC, 4000 Shoreline Court, Suite 400, South San Francisco, CA 94080. Standard mail enclosed in edition B1. Future US, Inc., also publishes PC Gamer, MacAddict, Official Xbox Magazine, and PSM. Entire contents copyright 2007, Future US, Inc. All rights reserved. Reproduction in whole or in part is prohibited. Future US, Inc., is not affiliated with the companies or products covered in Maximum PC. PRODUCED AND PRINTED IN THE UNITED STATES OF AMERICA.

ONLINE MUSIC STORES

iTunes Store **vs.** Zune Marketplace

When it comes to online music sales, Apple leads the field with the iPod and the iTunes software and music store—no one else even comes close. But when you consider that downloads are expected to account for one-third of all music sales by 2011, it should come as no surprise that Microsoft created the Zune and Zune Marketplace to grab a piece of the action.

Apple has been in this market for several years, so it benefits from long-established relationships with the major record labels and is the far more experienced player. Microsoft, on the other hand, has undoubtedly studied Apple's moves and should have learned from whatever mistakes its competitor has made.

The software and online-purchasing experience that go hand-in-hand with digital music players often get short shrift in reviews, but it's a critical consideration for consumers. This is particularly true for anyone who might purchase an iPod or Zune because they both lock you into purchasing tracks from a single source. In the event you prefer to rip your own music, however, we'll also examine the process for importing music from your own CDs.

BY MICHAEL **BROWN**

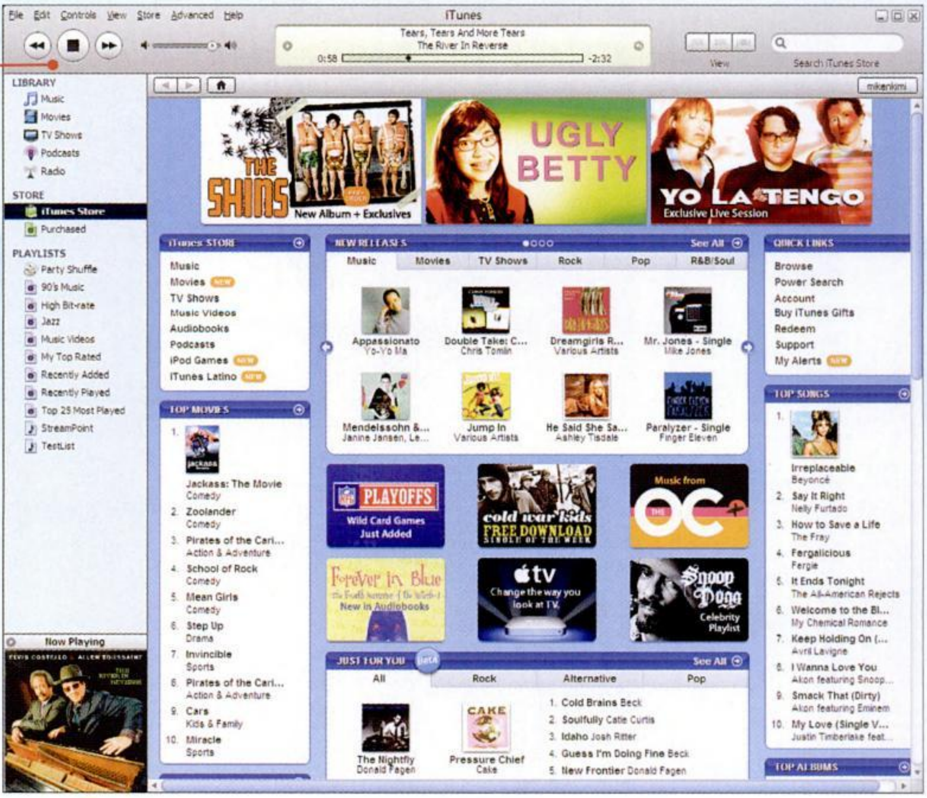
round 1 THE TOTAL CATALOG

It's de rigueur for an online music service to boast "millions of songs" in its library, but it doesn't matter if there are *billions* of songs in there if you can't find the music you crave. iTunes has millions more songs than Zune Marketplace today, but that situation won't last. And when it comes to support for independent labels and artists, the Zune Marketplace is superior. We found numerous out-of-the-mainstream acts, including the alt-country act Trailer Park Rangers and the instrumental-pop group Blue Star on Zune Marketplace, but not on iTunes.

But iTunes also includes support for Internet radio, and Apple has expanded far beyond music to offer podcasts, Hollywood movies, and broadcast TV shows. If music is all you care about, you might disdain the MTVing of iTunes, but the service still deserves the nod in this category.

WINNER: ITUNES

APPLE ITUNES
www.itunes.com


File Edit Controls View Store Advanced Help
iTunes
Tears, Tears And More Tears
The River In Reverse
0:58
-2:32
View
Search iTunes Store
LIBRARY
Music
Movies
TV Shows
Podcasts
Radio
STORE
iTunes Store
Purchased
PLAYLISTS
Party Shuffle
90's Music
High Bit-rate
Jazz
Music Videos
My Top Rated
Recently Added
Recently Played
Top 25 Most Played
StreamPoint
TestList
Now Playing
THE SHINS
New Album + Exclusives
UGLY BETTY
YO LA TENGO
Exclusive Live Session
iTunes STORE
Music
Movies
TV Shows
Music Videos
Audiobooks
Podcasts
iPod Games
iTunes Latino
NEW RELEASES
See All
Music
Movies
TV Shows
Rock
Pop
R&B/Soul
Appassionato
Yo-Yo Ma
Double Take: C...
Chris Tomlin
Dreamgirls R...
Various Artists
Mr. Jones - Single
Mike Jones
Mendelssohn &...
Janine Jansen, Le...
Jump In
Various Artists
He Said She Sa...
Ashley Tisdale
Paralyzer - Single
Finger Eleven
QUICK LINKS
Browse
Power Search
Account
Buy iTunes Gifts
Redeem
Support
My Alerts
TOP MOVIES
1. Jackass: The Movie
Comedy
2. Zoolander
Comedy
3. Pirates of the Cari...
Action & Adventure
4. School of Rock
Comedy
5. Mean Girls
Comedy
6. Step Up
Drama
7. Invincible
Sports
8. Pirates of the Cari...
Action & Adventure
9. Cars
Kids & Family
10. Miracle
Sports
PLAYOFFS
Wild Card Games
Just Added
cold war kids
FREE DOWNLOAD
SINGLE OF THE WEEK
Music from THE OC
Forever in Blue
New in Audiobooks
tv
Change the way you look at TV.
Snoop Dogg
Celebrity Playlist
TOP SONGS
1. Irreplaceable
Beyoncé
2. Say It Right
Nelly Furtado
3. How to Save a Life
The Fray
4. Fergalicious
Fergie
5. It Ends Tonight
The All-American Rejects
6. Welcome to the Bl...
My Chemical Romance
7. Keep Holding On (...
Avril Lavigne
8. I Wanna Love You
Akon featuring Snoop...
9. Smack That (Dirty)
Akon featuring Eminem
10. My Love (Single V...
Justin Timberlake feat...
JUST FOR YOU
Beta
See All
All
Rock
Alternative
Pop
The Nightfly
Donald Fagen
Pressure Chief
Cake
1. Cold Brains Beck
2. Soulfully Catie Curtis
3. Idaho Josh Ritter
4. Guess I'm Doing Fine Beck
5. New Frontier Donald Fagen
TOP ALBUMS

round 2 AUDIO QUALITY OF PURCHASED TRACKS

Theoretically, the tracks sold on Zune Marketplace are superior because they're encoded at 192Kb/sec (WMA) versus iTunes' 128Kb/sec (AAC). If you can hear the difference between a WMA file and an AAC file encoded at the same bitrate, congratulations; most people won't be able to tell the difference between tracks encoded at 128Kb/sec from those encoded at 192Kb/sec. Compare a track recorded at 192Kb/sec to the same song recorded using just about any *lossless* codec, on the other hand, and we'd be shocked if you couldn't hear the difference.

Unfortunately, neither iTunes nor Zune Marketplace sells songs encoded with a lossless codec; in fact, the Zune won't even *play* songs encoded in Microsoft's own WMA Lossless codec.

WINNER: NEITHER

round 3

THE PURCHASING EXPERIENCE

Leave it to Microsoft to decide that there's a better way to pay for merchandise than using dollars and cents. In order to buy music from Zune Marketplace, you must first buy Microsoft Points in $5 increments. You get 80 points on the dollar, but since most single tracks cost 79 points, you can never really spend all the points you buy. When you're buying a track for 79 points, it's easy to mentally convert that to $1.00, but how much money are you spending when you purchase an album for 720 points or a box set for 3,325 points?

You use real money when you purchase music on iTunes, and you can buy one or many tracks at a time—and that's the way it should be.

WINNER: ITUNES

round 4

IMPORTING YOUR OWN MUSIC

If you buy an iPod or a Zune, you might never purchase any tracks online but instead buy CDs, rip them to your PC, and then transfer them to your portable player. Given all the artificial restrictions the services' DRM schemes impose, this is the route we recommend.

ITunes and the Zune's software allow you to rip tracks using lossless codecs, Apple Lossless Encoder and WMA Lossless, respectively. Ripping tracks is pretty much a point-and-click affair with both programs, but we ran into problems with album art when we imported previously ripped tracks into the Zune software. Some art was missing and we couldn't import it from Microsoft's own database. Oddly enough, it was a snap to copy and paste images from other websites, but we had to take the time to hunt them down. We didn't have any such problem with iTunes.

WINNER: ITUNES

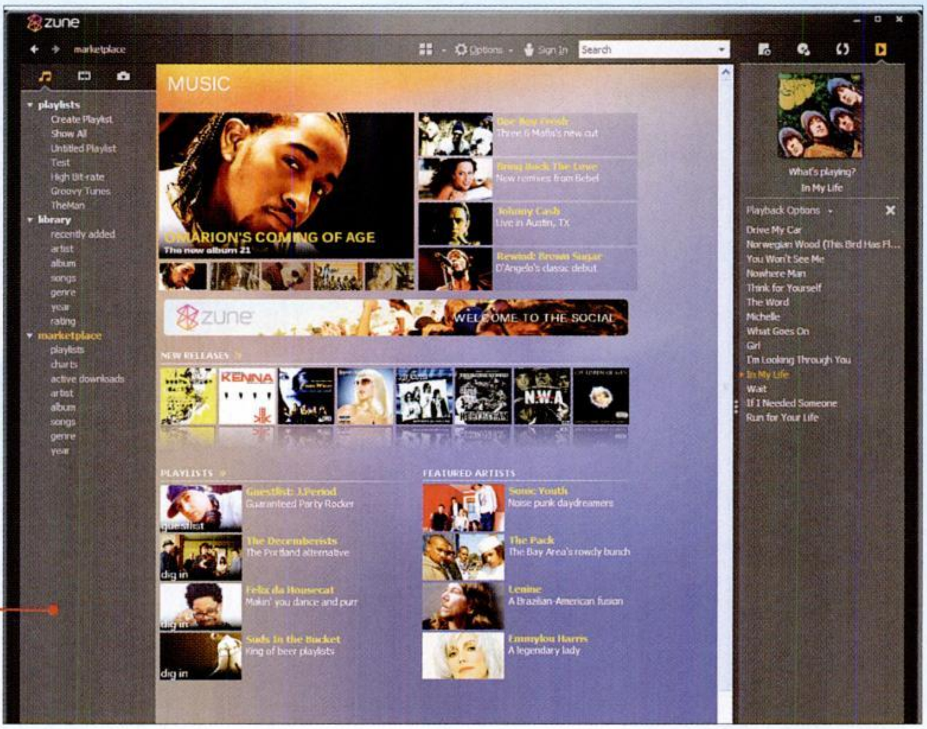
round 5

CREATING PLAYLISTS

Both iTunes and the Zune software make it easy to drag and drop songs to create playlists, and both offer tools to automate the process: ITunes describes these tools as Smart Playlists and Zune refers to them as Auto Playlists. We found playlists to be slightly easier to create in iTunes—simply because the selection criteria is listed from left to right, like a sentence, and the selection criteria is more precise. If you want to create a playlist consisting exclusively of tracks encoded at 320Kb/sec—a common choice—you can do that in iTunes. The Zune software limits your bitrate selection criteria to more specific values: at least, no more than, or no less than 300Kb/sec, for example. The Zune software, on the other hand, does provide more overall selection criteria than iTunes.

In both cases, syncing the playlist to the player—or burning the playlist to a CD—was a simple drag-and-drop operation.

WINNER: ITUNES


zune
marketplace
Options
Sign In
Search
MUSIC
playlists
Create Playlist
Show All
Untitled Playlist
Test
High Bit-rate
Groovy Tunes
TheMan
library
recently added
artist
album
songs
genre
year
rating
marketplace
playlists
charts
active downloads
artist
album
songs
genre
year
OMARION'S COMING OF AGE
The new album 21
Three 6 Mafia's new cut
Bring Back The Love
New remixes from Bebel
Johnny Cash
Live in Austin, TX
Rewind: Brown Sugar
D'Angelo's classic debut
zune
WELCOME TO THE SOCIAL
NEW RELEASES
PLAYLISTS
Guestlist: J.Period
Guaranteed Party Rocker
The Decemberists
The Portland alternative
Felix da Housecat
Makin' you dance and purr
Suds In the Bucket
King of beer playlists
dig in
FEATURED ARTISTS
Sonic Youth
Noise punk daydreamers
The Pack
The Bay Area's rowdy bunch
Lenine
A Brazilian-American fusion
Emmylou Harris
A legendary lady
What's playing?
In My Life
Playback Options
Drive My Car
Norwegian Wood (This Bird Has Fl...
You Won't See Me
Nowhere Man
Think for Yourself
The Word
Michelle
What Goes On
Girl
I'm Looking Through You
In My Life
Wait
If I Needed Someone
Run for Your Life

ZUNE MARKETPLACE
www.zune.net

And the Winner Is...

Microsoft's Zune software and its Zune Marketplace didn't win a single category in this head-to-head comparison, so it's anticlimactic to anoint Apple's iTunes the winner. Apple's service and software benefits from being in the market longer, and that should have given Microsoft a solid jump-off point, but it doesn't seem as though Microsoft has learned much of anything from Apple.

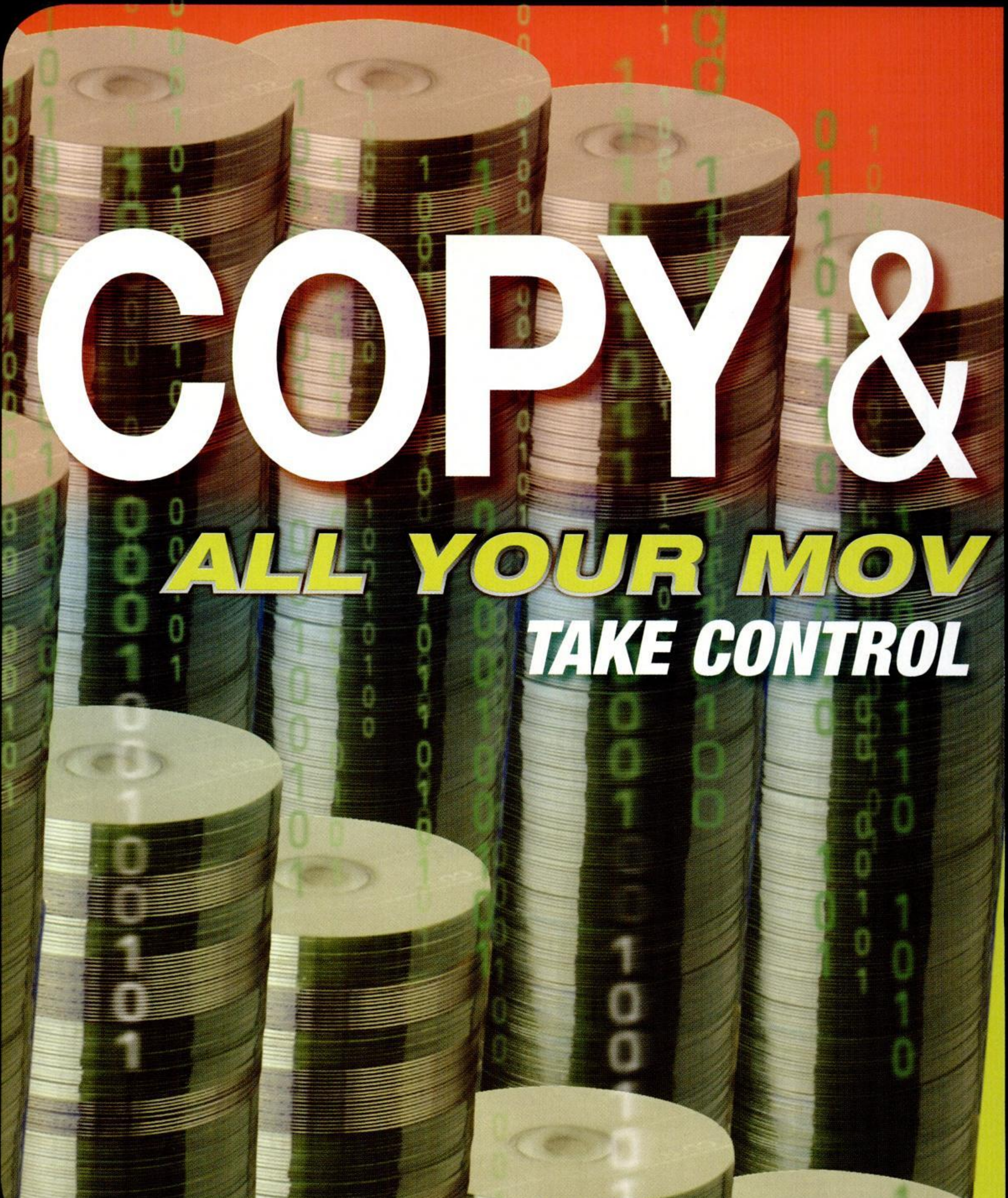
The fact that the Zune software doesn't allow you to back up the songs you've purchased is one of its most egregious shortcomings. Microsoft says you can easily restore your "media usage rights" if you encounter an error message that says you don't have the right to play the music, but you're screwed if your hard drive crashes and you can't play the song at all. Apple at least allows you to back up your songs to CD or DVD.

But there is one feature of the Zune Marketplace that we'd like to see Apple copy: We dig the $15-per-month subscription model that allows you to rent music and play it on both your PC and your Zune. But is that feature worth buying a Zune for? No way. And despite the fact that we think iTunes is better than the Zune Marketplace, we can't recommend buying music from either service. Even if you can swallow their DRM restrictions as a necessary evil, both services sell music that is compromised by lossy codecs. MPC

COPY &

ALL YOUR MOV

TAKE CONTROL



CONVERT

IES AND MUSIC

OF YOUR MOVIES AND MUSIC!

We'll show you how to make archival copies of your CDs, DVDs, iTunes Store purchases, and even HD DVD and Blu-ray discs!

THE fundamental problem with modern copy protection is simple: Content producers treat their paying customers like criminals as opposed to people who are buying their content through legitimate sources. If you purchase a song from iTunes, you can play it on only five machines and burn it to CD just a handful of times. If your buddy downloads that song from a file-sharing client (or rips a store-bought CD, for that matter), he can play it on all of his PCs and burn it to as many mix discs as he'd like. It's just not right.

Lest you get the wrong idea, *Maximum PC* remains committed to paying artists for their work. But we also believe that when you purchase media content—whether it's a song, a movie, or a TV show—you should have complete freedom to play it on all of your devices as many times as you'd like.

This is a great power, and with it comes great responsibility. It's within your right to copy media for your own use; however, as soon as you give that content to a friend, you're breaking the law and violating the artist's copyright. If artists stop getting paid for their work, they'll stop making it, and we'll miss out on the music and movies we love.

There's another twist to the whole issue. While the "fair use" doctrine (arguably) gives you the right to copy media for your own use, the Digital Millennium Copyright Act (DMCA) makes it illegal to break encryption on copyrighted works—regardless of your reasons for doing so. By decrypting a copyrighted DVD for backup, you're breaking the law. Of course, the only way anyone will know you've done something wrong is if you start distributing the decrypted files—thus violating copyright—and we know you'd never do that. That's why we can, in all good conscience, show you exactly how to take control of all your media.

BY THE MAXIMUM PC STAFF

COPY & CONVERT
ALL YOUR MOVIES AND MUSIC

ARCHIVE YOUR CD LIBRARY

Forget MP3! We're making bit-by-bit perfect copies of our music collection using a lossless codec

WHAT YOU'LL NEED

Your audio CD collection

Exact Audio Copy **(free, www.exactaudiocopy.de)**

FLAC **(free, http://flac.sourceforge.net)**

AccurateRip **(free, accuraterip.com)**

Audio CDs are susceptible to damage and aging, so it's a good idea to make archival copies of your collection. We'll show you how, using the lossless compression algorithm FLAC (Free Lossless Audio Codec).

A lossless encoder compresses digital audio files with absolutely no compromise in fidelity compared to the original. The only drawbacks are large file sizes (though they're much smaller than WAV files) and scarce support among portable players. On the other hand, FLAC enjoys wide support among audio-streaming boxes.

STEP 1: INSTALL EAC AND FLAC

Exact Audio Copy (EAC) will detect and attempt to auto-configure any optical drives on your system during setup. Check those you wish to use and click Next. Use the "I prefer to have accurate results" option and click Next.

Choose the option "I don't trust these values…," drop a clean audio CD in the drive, and click Next. It's crucial that the drive you rip from has an "accurate stream," meaning it does not produce "jitter" (if the drive can't accurately seek a specific sector on the disc, ripped tracks will have audible distortion).

Remove the checkmark next to "Install and configure LAME…" and click Next. Enter an email address and click Next. Choose the Expert option at the final prompt and click Finish. Exit EAC.

Install FLAC, ignoring the Winamp and Nero messages. Leave checkmarks next to all the default options and click Install.

STEP 2: INSTALL ACCURATERIP

Install AccurateRip and then copy the file **accuraterip.dll** from **C:\program files\illustrate\dbpoweramp** to **C:\program files\exact audio copy**. Put a CD in the drive and relaunch EAC. Click the Configure button and then click OK. Select all tracks and click EAC's Action menu. Choose Copy Selected Tracks from the drop-down menu; use the uncompressed option.

AccurateRip will compare your results to a database of rips by others and report a confidence level. "Confidence 30," for example, means your rip is identical to that of 30 other people, so there's a high probability it's accurate. Click OK.

STEP 3: CONFIGURE EAC

Click the EAC menu and choose EAC Options. Click the General tab. Leave these options at their defaults but place a checkmark next to "On unknown CDs" and select the option "Automatically access online freedb database." Click the Tools tab and place checkmarks next to everything *except* "Create '.m3u' playlist…," "Do not open external…," and "Activate beginner mode."

Click the Filename tab and enter the values **%A\%C\%N - %T** into Naming Scheme to create a nested directory structure that follows the Artist Name\Album Title\Track Number - Track Title scheme. Check "Use various artist naming scheme" and enter the values **Various Artists\%C\%N - %A %T** so compilation albums are stored in a "Various Artists" folder broken up by album. Click OK.

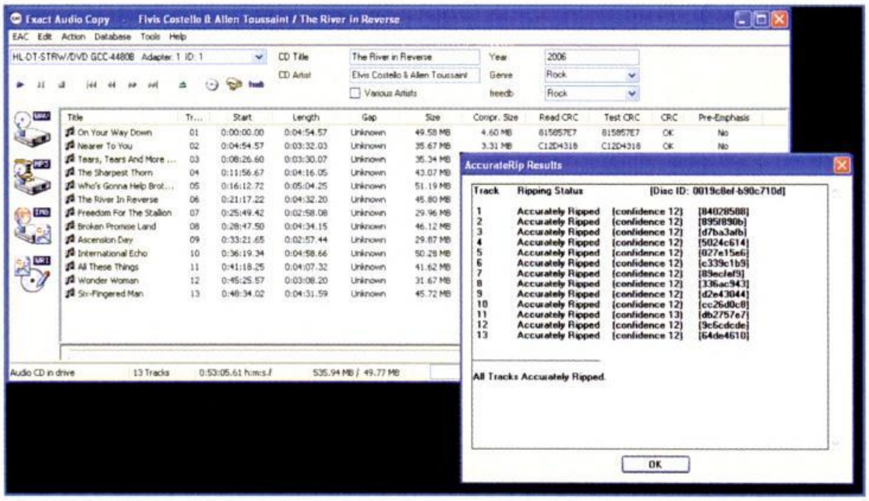
Click the EAC menu again and choose Drive Options and Extraction Method. Make sure Secure Mode is selected, with a checkmark next to "Drive has Accurate Stream feature." Click the Drive tab and check "Spin up drive before extraction." Leave everything else at default and click OK.

Click the EAC menu once more, choose Compression Options and External Compression. Check "Use external program for compression." In the drop-down menu "Parameter passing scheme," select "User Defined Encoder." Type **.flac** in the "Use file extension" box.

Click Browse, locate the FLAC executable (flac.exe), select it, and click OK. Enter these characters into "Additional command line options": **-6 -V -T "artist=%a" -T "title=%t" -T "album=%g" -T "date=%y" -T "tracknumber=%n" -T "genre=%m" -T comment="%e" -T "comment=EAC (Secure Mode)" %s.** Bitrate doesn't matter, but check "Delete WAV after compression" and "Check for external compression return code."

STEP 4: COMMENCE ARCHIVING

Place the audio CD you wish to archive in the drive. Click the Action menu and choose "Test and Copy Selected Tracks" using the Compressed option this time. This will perform a cyclical redundancy check (CRC) to verify the integrity of your rip. It's another paranoid step, but we think it's warranted when producing critical backups. An OK will appear in EAC's CRC column if the rip was executed successfully. Repeat until you've backed up your entire library.


Exact Audio Copy - Elvis Costello & Allen Toussaint / The River in Reverse
EAC Edit Action Database Tools Help
WAV
MP3
IMG
WRI
OK

HL-DT-STRW/DVD GCC-4480B Adapter: 1 ID: 1

CD Title: The River in Reverse
CD Artist: Elvis Costello & Allen Toussaint
☐ Various Artists
Year: 2006
Genre: Rock
freedb: Rock

Title	Tr...	Start	Length	Gap	Size	Compr. Size	Read CRC	Test CRC	CRC	Pre-Emphasis
On Your Way Down	01	0:00:00.00	0:04:54.57	Unknown	49.58 MB	4.60 MB	815857E7	815857E7	OK	No
Nearer To You	02	0:04:54.57	0:03:32.03	Unknown	35.67 MB	3.31 MB	C12D4318	C12D4318	OK	No
Tears, Tears And More ...	03	0:08:26.60	0:03:30.07	Unknown	35.34 MB					
The Sharpest Thorn	04	0:11:56.67	0:04:16.05	Unknown	43.07 MB					
Who's Gonna Help Brot...	05	0:16:12.72	0:05:04.25	Unknown	51.19 MB					
The River In Reverse	06	0:21:17.22	0:04:32.20	Unknown	45.80 MB					
Freedom For The Stallion	07	0:25:49.42	0:02:58.08	Unknown	29.96 MB					
Broken Promise Land	08	0:28:47.50	0:04:34.15	Unknown	46.12 MB					
Ascension Day	09	0:33:21.65	0:02:57.44	Unknown	29.87 MB					
International Echo	10	0:36:19.34	0:04:58.66	Unknown	50.28 MB					
All These Things	11	0:41:18.25	0:04:07.32	Unknown	41.62 MB					
Wonder Woman	12	0:45:25.57	0:03:08.20	Unknown	31.67 MB					
Six-Fingered Man	13	0:48:34.02	0:04:31.59	Unknown	45.72 MB					

Audio CD in drive | 13 Tracks | 0:53:05.61 h:m:s.f | 535.94 MB / 49.77 MB

AccurateRip Results

```
Track   Ripping Status                          [Disc ID: 0019c8ef-b90c710d]

1       Accurately Ripped   (confidence 12)   [84028588]
2       Accurately Ripped   (confidence 12)   [895f890b]
3       Accurately Ripped   (confidence 12)   [d7ba3afb]
4       Accurately Ripped   (confidence 12)   [5024c614]
5       Accurately Ripped   (confidence 12)   [027e15e6]
6       Accurately Ripped   (confidence 12)   [c339c1b9]
7       Accurately Ripped   (confidence 12)   [89ecfef9]
8       Accurately Ripped   (confidence 12)   [336ac943]
9       Accurately Ripped   (confidence 12)   [d2e43044]
10      Accurately Ripped   (confidence 12)   [cc26d0c8]
11      Accurately Ripped   (confidence 13)   [db2757e7]
12      Accurately Ripped   (confidence 12)   [9c6cdcde]
13      Accurately Ripped   (confidence 12)   [64de4610]

All Tracks Accurately Ripped.
```

Using AccurateRip and EAC's Test & Copy option will provide an added measure of assurance that your rips are precise and worthy of your archive.

Gorillaz "Fire Coming out of the Monkey's Head" • Eric Cartman "Kyle's Mom Is a Bitch" • Hard 'n Phirm "pi" • Wall of Voodoo "Mexican Radio" • Wilco "I Am Trying to Break Your Heart" • Blue Oyster Cult "Don't Fear the Reaper"

kingston.com/flash

flash

kingston flash products

Life happens in a flash.

You're always on the go. You can't afford to let access to your data and entertainment slow you down.

Kingston® has the memory you can trust for your Flash-based devices, including digital cameras, mobile phones and more. From Secure Digital and CompactFlash storage cards to DataTraveler® USB Flash drives, Kingston Flash memory delivers the quality and reliability to take your data, photos, ringtones, music and more anywhere you go.

Remember, life happens in a flash. Get the memory you can count on to make it last.

amazon.com BEST BUY buy.com the internet superstore circuit city COMPUSA newegg.com

ISO 9001:2000 SGS

©2007 Kingston Technology Company, Inc. 17600 Newhope Street, Fountain Valley, CA 92708 USA All rights reserved. All trademarks and registered trademarks are the property of their respective owners.

Kingston TECHNOLOGY
COMMITTED TO MEMORY®

Copyrighted material

COPY & CONVERT

ALL YOUR MOVIES AND MUSIC

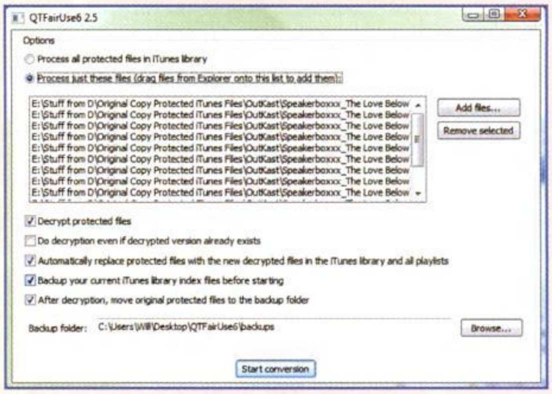
DECRYPT ITUNES FILES

Even Steve Jobs hates DRM, so in his honor, we'll show you how to decrypt tracks you buy from his store

You've bought a ton of music from the iTunes Store, but when you bought a non-Apple player, you realized you had a problem—your new player can't play any of the tracks you purchased through iTunes. Never fear, it's easy enough to decrypt your music files to play on any device—you just need the right tools.

It's always been possible to burn your tracks to audio CD and then rerip them, but it's a pretty serious pain in the ass. After you rip the tracks to MP3, you need to type in all the ID3 information for every track. Also, recompressing the tracks introduces errors, which diminishes the quality of your audio. Like we said, it's a real hassle.

QTFairUse sidesteps the FairPlay encryption in iTunes files by pulling the unencrypted AAC-formatted track from memory before it's decompressed. Then it tacks the song's artist, title, and album info onto the new file and replaces the old protected file in iTunes with your new protectionless file.



○ Process all protected files in iTunes library

● Process just these files (drag files from Explorer onto this list to add them):

```
E:\Stuff from D\Original Copy Protected iTunes Files\OutKast\Speakerboxxx_The Love Below
E:\Stuff from D\Original Copy Protected iTunes Files\OutKast\Speakerboxxx_The Love Below
E:\Stuff from D\Original Copy Protected iTunes Files\OutKast\Speakerboxxx_The Love Below
E:\Stuff from D\Original Copy Protected iTunes Files\OutKast\Speakerboxxx_The Love Below
E:\Stuff from D\Original Copy Protected iTunes Files\OutKast\Speakerboxxx_The Love Below
E:\Stuff from D\Original Copy Protected iTunes Files\OutKast\Speakerboxxx_The Love Below
E:\Stuff from D\Original Copy Protected iTunes Files\OutKast\Speakerboxxx_The Love Below
E:\Stuff from D\Original Copy Protected iTunes Files\OutKast\Speakerboxxx_The Love Below
E:\Stuff from D\Original Copy Protected iTunes Files\OutKast\Speakerboxxx_The Love Below
```

☑ Decrypt protected files

☐ Do decryption even if decrypted version already exists

☑ Automatically replace protected files with the new decrypted files in the iTunes library and all playlists

☑ Backup your current iTunes library index files before starting

☑ After decryption, move original protected files to the backup folder

Backup folder: C:\Users\Will\Desktop\QTFairUse6\backups

QTFairUse6 will let you decrypt your iTunes Music Store purchases.

To make it work, all you need to do is install QTFairUse, start iTunes, then run QTFairUse6.exe. You have two options: You can either have it go through your iTunes database and automatically convert all your protected files or change them one at a time. If you have trouble getting the app to decrypt your files, try starting iTunes before you load the application.

WHAT YOU'LL NEED

iTunes 7.02 or earlier (**www.itunes.com** or **http://www.oldapps.com/itunes.htm**)

QTFairUse6 ver. 2.5 (**free, find it on Google**)

You'll also need to use a specific version of iTunes; version 2.5 of QTFairUse6 won't work with versions of iTunes newer than 7.02.

It's a good idea to flip the toggle in QTFairUse6 that backs up your original encrypted files. In the past, Apple has used different tricks to disable playback of decrypted songs. You may need to re-decrypt the original files at some point in the future.

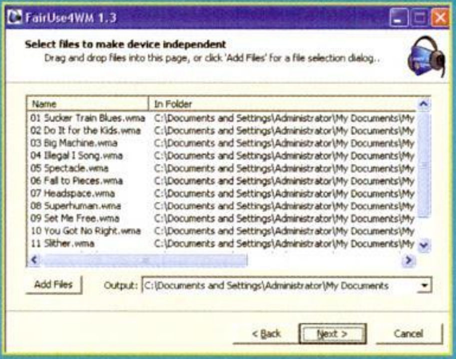
You should also know that there's currently no way to decrypt video files purchased from iTunes. Of course, the easy way to avoid all these problems is to simply not purchase music or video from online stores that use digital rights management. That means you're stuck buying DVDs, CDs, or unencrypted MP3s from a store such as eMusic.

DECRYPT WMA FILES

Microsoft's content protection can be defeated, but it's significantly more difficult to do

Decrypting Windows Media protection can be significantly more difficult than decrypting FairPlay, but there are tools that will do the job. However, decrypting WMA files isn't as cut and dried, legally speaking, as decrypting iTunes Store files. Many music providers who use Plays4Sure encryption actually just rent music—instead of paying per track, as you do with iTunes, you pay a flat fee every month and your music is accessible for only as long as you pay. While it's acceptable to decrypt music you own, decrypting music you rent so that you can keep it after you cancel your subscription is stealing.

That said, it's fairly easy to decrypt Windows Media files if you're not running WMP11; all you need to do is download FairUse4WM and run it on the files you want to decrypt. The trick is that you can't be running the final version of Windows Media Player 11—it includes technology that bypasses decryption software. If you've already installed WMP11, it's tough to get rid of. You'll either have to nuke your Windows install and start from scratch or install Windows in a virtual machine with the proper version of WMP. You'll also need to have the proper keys to play the files stored on your machines—Windows Media Player downloads these automatically the first time you play the file.



Select files to make device independent

Drag and drop files into this page, or click 'Add Files' for a file selection dialog..

Name	In Folder
01 Sucker Train Blues.wma	C:\Documents and Settings\Administrator\My Documents\My
02 Do It for the Kids.wma	C:\Documents and Settings\Administrator\My Documents\My
03 Big Machine.wma	C:\Documents and Settings\Administrator\My Documents\My
04 Illegal I Song.wma	C:\Documents and Settings\Administrator\My Documents\My
05 Spectacle.wma	C:\Documents and Settings\Administrator\My Documents\My
06 Fall to Pieces.wma	C:\Documents and Settings\Administrator\My Documents\My
07 Headspace.wma	C:\Documents and Settings\Administrator\My Documents\My
08 Superhuman.wma	C:\Documents and Settings\Administrator\My Documents\My
09 Set Me Free.wma	C:\Documents and Settings\Administrator\My Documents\My
10 You Got No Right.wma	C:\Documents and Settings\Administrator\My Documents\My
11 Slither.wma	C:\Documents and Settings\Administrator\My Documents\My

Output: C:\Documents and Settings\Administrator\My Documents

Assuming you have the right version of Windows Media Player, you can decrypt files encoded using Plays4Sure.

WHAT YOU'LL NEED

FairUse4WM (**free, find it on Google**)

Windows Media Player 9 or 10

This works only on songs that have been encrypted using Plays4Sure; the tracks from the Zune Marketplace use a new type of DRM, which hasn't been cracked yet.

Rick James "Super Freak" • MC Chris "Geek" • Shonen Knife "Computer Language" • The Flaming Lips "Yoshimi Battles the Pink Robots, Part 1" • They Might Be Giants "Particle Man" • Gnarls Barkley "Transformer" • Weezer "In the Gara

K2 NETWORK™
JOIN 10 MILLION PLAYERS WORLDWIDE
IN AMAZING FREE2PLAY GAMES
GAMERSFIRST.NET
SOUNDS BEST ON
Sound BLASTER X-Fi
TECHNOLOGY
PLAYS BEST ON
ALIENWARE

HANGAR18

Alienware, Alienware Alien head logo and Hangar18 are registered trademarks or trademarks of Alienware Corporation. Alienware can not be held responsible for errors in photography or typography. Actual case may vary in design. Availability may change without notice. All other registered trademarks and trademarks are the property of their respective owners.

REDEFINING YOUR STANDARDS

THE **HANGAR18** : HD ENTERTAINMENT CENTER

WATCH
DOWNLOAD
LISTEN
SHARE

WATCH: Blu-ray Disc™ high definition movies in 1080p and record and pause live TV
LISTEN: Built-in 5.1 digital amplifier delivering up to 200 watts per channel
DOWNLOAD: Up to 480 movies or 2000 TV shows or 960 hours (2TB)
SHARE: Wirelessly stream content to other PCs, extenders, and mobile devices

Call toll-free or visit online to learn more at:
WWW.ALIENWARE.COM/MEDIA

Reseller inquires please call:
1.888.253.4355

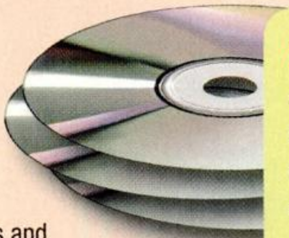
Copyrighted material

COPY & CONVERT

ALL YOUR MOVIES AND MUSIC

RIP AND ENCODE YOUR DVDs

It's easy to make archival-quality copies of your movies and then save them in open formats that will work with any device!



WHAT YOU'LL NEED

AutoGK (**free, www.autogk.me.uk**)

DVD Decrypter (**free, find it on Google**)

RipIt4Me (**free, www.ripit4me.org**)

FixVTS (**free, http://download.videohelp.com/FixVTS/**)

AC3Filter (**free, http://AC3Filter.sourceforge.net**)

Ripping DVDs is much more complex than ripping audio CDs. The format includes built-in copy protection, which makes ripping discs more hit or miss, especially since the movie studios are rolling out newer, trickier forms of protection all the time. The sad truth is that, frequently, getting a good rip from your DVD requires a lot of trial and error.

In the past, we've recommended an expensive cocktail of utilities to rip your commercial DVDs; however, that's not strictly necessary anymore. We've had great success using free and open-source software to rip our favorite movies, even the troublesome discs that caused problems in the past.

There are two basic steps to the process, and we'll show you how to do both! First, you'll need to copy the contents of the disc to your hard drive, then you'll encode the data using a more efficient codec than is actually used on commercial DVDs. The result is a movie that looks and sounds great and takes up a fraction of the space the DVD would require on your drive. Once you've ripped your DVDs, it's a cinch to store them on a file server, convert them to portable-player-friendly formats, and even stream them across your network. We'll even show you how to fix the two most common ripping problems.

STEP 1a

RIP MOVIE DVDs

The easiest way to rip a movie DVD—we'll talk about TV show DVDs in a moment—is to use DVD Decrypter at its default settings. Insert your disc, open DVD Decrypter, make sure the disc is set to File mode (press F), and rip the disc.

Occasionally, there are problems ripping in File mode. Many newer discs include copy protection that confuses DVD Decrypter, and you may end up with hitches in the movie or badly out-of-sync audio. Fixing the audio sync is simple (we'll talk about that on the next page); hitches in the movie are usually caused by multiple viewing angles in the DVD. To fix this problem, you'll need to rerip the disc with multi-angle processing enabled. Go to Tools, Settings, File Mode, and check Multi Angle Processing. You'll want to use Angle 1. When that's done, you can skip ahead to Step 2 on the next page.

If your problems persist—and, unfortunately, you won't know this until after you've already encoded the movie—the only solution is to rerip and re-encode the entire picture using RipIt4Me, using the instructions in step 1c.

STEP 1b

RIP TV SHOW DVDs

Ripping TV shows is tricky; there are usually three to six episodes on one disc that are split into different titles or chapters. The first thing you'll do is switch DVD Decrypter to IFO mode by pressing I. Then you'll need to tweak the IFO mode settings by going to Tools, Settings IFO Mode. Make sure all the boxes in the Settings section are checked and File Splitting is set to None.

Next, you'll want to individually rip each episode in its own IFO. In the Input window, expand the different VTS_XX entries until you find PGC entries that are the proper length for your TV shows (usually 23 minutes for half-hour programs and 46 minutes for hour-long shows). Select one and then rip it to the destination of your choice. Repeat for each episode, saving each rip in a separate folder on your hard drive.

Occasionally, you'll find a TV show DVD that stores all the episodes in one large title. In that case, it's best to rip it just like you would a movie and then split the files up later using our process explained in the VirtualDub sidebar on the next page.

STEP 1c

RIP PROBLEM DVDs

We're going to assume that you ripped and encoded your disc, but the final product has a problem. It's usually easy to fix audio-sync errors, but any video hitches, out of sync sections, or other more complex errors will probably require a rerip. It's time to use RipIt4Me.

The good news is that RipIt4Me is super easy to install and use. Download the app and install it, along with FixVTS. Then fire it up and walk through the Wizard mode. Follow all the instructions up to the step involving DVD Shrink. Since we're encoding using the Xvid codec instead of just reburning on DVD, you can safely skip this step—we'll use AutoGK to handle the encode for us in Step 2.

There are commercial alternatives that are much better supported than the freeware apps. AnyDVD (**$80, www.slysoft.com**) makes DVD ripping a simple drag 'n' drop affair and allows you to use commercial DVD ripping software that doesn't support decryption, i.e. Nero Recode. And because AnyDVD is a for-profit product, the folks at Slysoft are very good about updating the software to defeat any emergent types of content protection found on new DVDs.

STEP 2

ENCODE USING AUTOGK

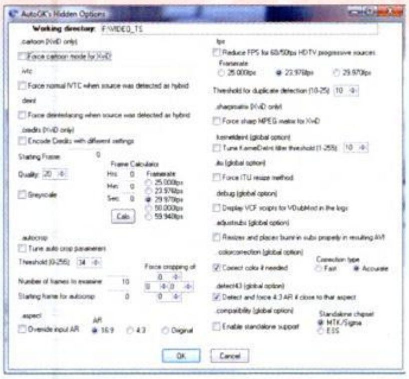
If you finished any version of Step 1, you should have a folder with decrypted IFO and VOB files. The IFO files serve as the table of contents for your DVDs, while the VOBs contain the actual MPEG-2 encoded video from the DVDs. The first thing you need to do is point AutoGK to the proper IFO file—there may be several in your rip directory. It's a little tricky to tell which is the proper PGC, but you should be able to figure it out using the run time for each section. It will be the same length as the movie or TV show you want to encode.

Next, you'll want to select the audio track to use for your finished movie, the quality setting, and subtitles (if any) you want to use. Generally, the first track is the proper one to use—it's usually Dolby Digital 5.1 in English. Unless you want a specific subtitle, it's usually best to skip them. As for quality, we usually encode using the highest quality settings, then transcode down for portable hardware that requires lower resolutions or smaller files. To maximize the quality, set the Target Quality to 100%. Finally, you'll want to tweak the advanced options. Click the Advanced Settings button and adjust the Output resolution to maximum width, check "Display only forced subtitles," and switch "Output audio type" to Original (if you want to preserve the DVD's 5.1 sound). Forcing subtitles will enable their display in movies that use them for only certain scenes. If you don't enable this option, then you won't see any subtitles when Jabba tells Han he's bantha fodder in *Return of the Jedi,* for example.

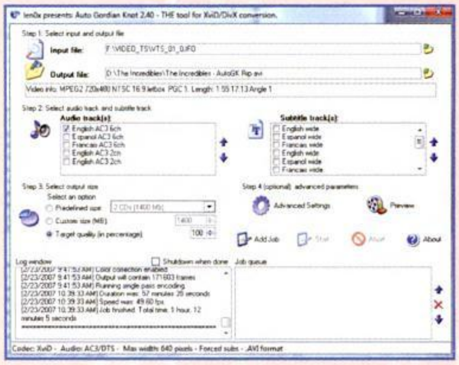
It's also worth mentioning that if you rip the original audio track in Dolby Digital 5.1, you'll need to install AC3Filter to hear the audio on your PC. However, many handheld and streaming devices support Dolby Digital natively and will reproduce full 5.1 sound when you play videos.

Finally, you may want to check the hidden options. Press Ctrl+F9 from the main AutoGK interface. The most obvious option you may need is cartoon rendering. Enable cartoon rendering only for hand-drawn animation, such as *The Simpsons* or *Family Guy*. If you enable it for Pixar-style 3D animation, you will not get good results.

The only thing left to do is tell AutoGK where to save your file; press Add Job, and then start the queue processing. One of the best features of AutoGK is that it allows batch processing. If you rip multiple DVDs to your drive, you can actually set AutoGK to encode them one after the other, with no input required from you. We like to queue up four or five movies every night, and then wake up to multiple finished encodes!



There are a host of advanced options hidden in the Ctrl+F9 menu.


len0x presents: Auto Gordian Knot 2.40 - THE tool for XviD/DivX conversion.
Step 1: Select input and output file
Step 2: Select audio track and subtitle track
Step 3: Select output size
Step 4 (optional): advanced parameters
Advanced Settings
Preview
Add Job
Start
Abort
About
Log window
Job queue

Input file: F:\VIDEO_TS\VTS_01_0.IFO

Output file: D:\The Incredibles\The Incredibles - AutoGK Rip.avi

Video info: MPEG2 720x480 NTSC 16:9 letbox PGC 1. Length: 1:55:17.13 Angle 1

Audio track(s):
- ☑ English AC3 6ch
- ☐ Espanol AC3 6ch
- ☐ Francais AC3 6ch
- ☐ English AC3 2ch
- ☐ English AC3 2ch

Subtitle track(s):
- ☐ English wide
- ☐ Espanol wide
- ☐ Francais wide
- ☐ English wide
- ☐ Espanol wide
- ☐ Francais wide

Select an option
- ○ Predefined size: 2 CDs (1400 Mb)
- ○ Custom size (MB): 1400
- ● Target quality (in percentage): 100

☐ Shutdown when done

```
[2/23/2007 9:41:53 AM] Color correction enabled
[2/23/2007 9:41:53 AM] Output will contain 171603 frames
[2/23/2007 9:41:53 AM] Running single pass encoding
[2/23/2007 10:39:33 AM] Duration was: 57 minutes 25 seconds
[2/23/2007 10:39:33 AM] Speed was: 49.60 fps
[2/23/2007 10:39:33 AM] Job finished. Total time: 1 hour, 12 minutes 5 seconds
```

Codec: XviD - Audio: AC3/DTS - Max width: 640 pixels - Forced subs - .AVI format

AutoGK handles all the dirty work of your DVD encode and produces good-looking, small encoded movies.

RESYNC AUDIO

There are a couple ways audio can get out of sync when you're ripping a movie. Either it stays consistently out of sync through the entire film or it gets gradually worse as the picture goes on. If it stays the same, it's easily fixed using VirtualDub (which should have been installed with AutoGK). If the audio gets progressively worse, you've usually got to rerip the disc, taking care to remove multiple angles from the video stream (see Step 1).

To resync fixable audio, first open your movie in VirtualDub. Then determine how off your audio track is and whether the audio is playing ahead of the video or vice versa. Go to the Streams menu and click "Stream list." There should be only one stream, so right-click it and select Interleaving. You'll want to adjust the Audio Skew Correction, which is measured in milliseconds (remember, 1,000ms = 1 second). You should use a positive skew if the audio plays too early and a negative skew if it plays too late. You can adjust this number and then play the output to see how you did (you'll need to use the third button from the left on the control panel to preview the output).

Continue making adjustments until your audio syncs with your video and then save the video. You'll want to make sure you enable "Direct stream copy" in the save dialog, or it will take ages to re-encode the video.

SPLIT FILES USING VIRTUALDUB

Sometimes you end up with one large file either on purpose or by mistake. Splitting files is simple, but you'll need to use VirtualDub again. Open the video you want to split, move to the first frame of the section you want to split off, and press the Home key. Then move to the last frame and press the End key. This will select everything between the beginning and end of your section. Then go to the File menu and select Save As. Again, ensure that "Direct stream copy" is selected, name your file, and press Save. This will create a new video that contains just your selected section of the movie or TV programming.

COPY & CONVERT

ALL YOUR MOVIES AND MUSIC

RIP HD DVD AND BLU-RAY DISCS

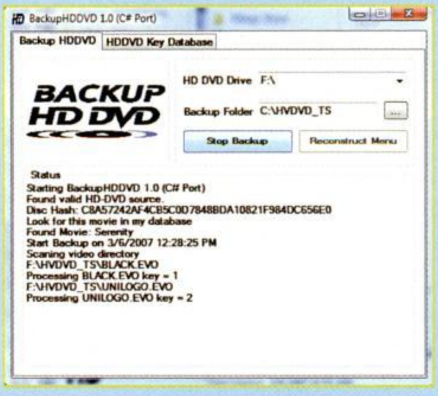
There's one big reason to decrypt and copy high-definition discs right now—HDCP. If your rig isn't able to play HDCP-encumbered movies, this procedure will let you copy the discs to your drive whether you have HDCP hardware or not!

HD DVD

You need three things to back up your HD DVD discs: an HD DVD drive, BackupHDDVD 1.0, and the title key for the disc you want to rip. You'll have to search Google for BackupHDDVD_1.0.rar, as download sites for the app remain fairly transient. The app includes title keys for many releases, but you may need to download more from either **www.aacskeys.com** or **www.hdkeys.com**.

For our tests, we used Microsoft's Xbox 360 HD DVD drive, which works with any Windows PC. You'll need to have a ton of hard drive space if you want to rip multiple HD DVDs—each rip takes about 20GB of space. To start the rip, open BackupHDDVD, point it to your HD DVD drive, and tell it where to save the ripped disc. Then press the Start Backup button and come back in about an hour.

The bad news is that the tools to extract video and audio and then recompress them using a more efficient codec aren't available yet for HD DVD content. So for now, you'll have to leave the entire 20GB monster rips on your drive. However, this will let you play high-definition content on a display or videocard that lacks HDCP implementation, which is reason enough to endure the hassle.



HD DVD Drive F:\

Backup Folder C:\HVDVD_TS

Status

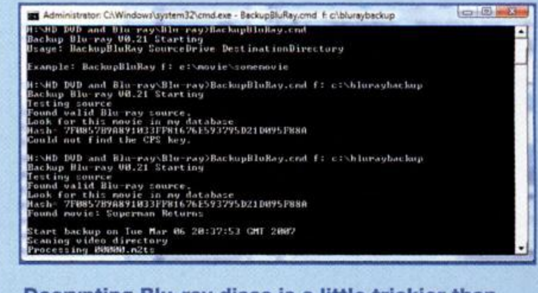
```
Starting BackupHDDVD 1.0 (C# Port)
Found valid HD-DVD source.
Disc Hash: C8A57242AF4CB5C0D7848BDA10821F984DC656E0
Look for this movie in my database
Found Movie: Serenity
Start Backup on 3/6/2007 12:28:25 PM
Scaning video directory
F:\HVDVD_TS\BLACK.EVO
Processing BLACK.EVO key = 1
F:\HVDVD_TS\UNILOGO.EVO
Processing UNILOGO.EVO key = 2
```

Copying HD DVDs is very easy with this handy graphical utility.

BLU-RAY

Unfortunately, as we went to press, the tools for ripping Blu-ray discs were substantially less developed. Instead of a fast GUI, you'll need to use a slower Java application, which also necessitates installing Java on your rig.

Search Google for BackupBlurayv021.zip and extract it to a directory on your hard drive—we used C:\backupbluray\. Unlike the HD DVD ripper, the first version of the Blu-ray backup app doesn't include any title keys, so you'll have to find them on the Internet at **www.aacskeys.com** or on message boards. You'll need to open the CPSKey.cfg file in the run subdirectory and manually input the keys you find on the Internet for your discs. Then open a command line and browse to the app's directory using the command **cd \backupbluray\run**. Type **Backupbluray.cmd x: c:\blurayrips\**, where **x:** is your Blu-ray drive's letter and **c:\blurayrips** is a directory you created that has enough free space. Press Enter, and your rip will be underway.


Administrator: C:\Windows\system32\cmd.exe - BackupBluRay.cmd f: c:\bluraybackup

```
H:\HD DVD and Blu-ray\Blu-ray>BackupBluRay.cmd
Backup Blu-ray V0.21 Starting
Usage: BackupBluRay SourceDrive DestinationDirectory

Example: BackupBluRay f: e:\movie\somemovie

H:\HD DVD and Blu-ray\Blu-ray>BackupBluRay.cmd f: c:\bluraybackup
Backup Blu-ray V0.21 Starting
Testing source
Found valid Blu-ray source.
Look for this movie in my database
Hash- 7F0857B9A891033FF81676E593795D21D095F88A
Could not find the CPS key.

H:\HD DVD and Blu-ray\Blu-ray>BackupBluRay.cmd f: c:\bluraybackup
Backup Blu-ray V0.21 Starting
Testing source
Found valid Blu-ray source.
Look for this movie in my database
Hash- 7F0857B9A891033FF81676E593795D21D095F88A
Found movie: Superman Returns

Start backup on Tue Mar 06 20:37:53 GMT 2007
Scaning video directory
Processing 00000.m2ts
```

Decrypting Blu-ray discs is a little trickier than decrypting HD DVD—there's no pretty GUI!

BLAME IT ON HDCP

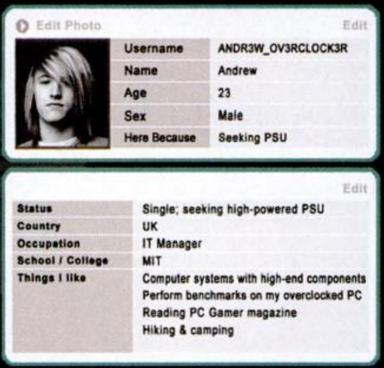
Once you've decrypted your HD DVD or Blu-ray discs, you'll be able to watch them on any display—even one that doesn't support HDCP—using your normal HD DVD or Blu-ray software. Just select the Browse to File option in your player software and watch away.

Why is all this hoop-jumping necessary? Because high-def movie playback on PCs is badly broken. Dig this: If you play an HD DVD or Blu-ray movie on an analog display, it just works. Most players don't automatically downsample the quality, and you see the movie in its full high-definition glory. However, if you use a digital connection and your monitor or videocard doesn't support HDCP (or even if they do, in some cases—check out In the Lab on page 56), your picture will either be downsampled or disabled entirely. That's just not right.

Edit Photo
Edit
Edit

Username	PCGAMER4LIFE
Name	Mike
Age	20
Sex	Male
Here Because	Seeking PSU

Status	Single; seeking gaming PSU
Country	USA
Occupation	College Student
School / College	UCLA
Things I like	Computer systems with high-end components Playing FPS computer games Comic books Listening to music



Username	ANDR3W_OV3RCLOCK3R
Name	Andrew
Age	23
Sex	Male
Here Because	Seeking PSU

Status	Single; seeking high-powered PSU
Country	UK
Occupation	IT Manager
School / College	MIT
Things I like	Computer systems with high-end components Perform benchmarks on my overclocked PC Reading PC Gamer magazine Hiking & camping

OCZ POWER SUPPLIES

GAME X STREAM POWER SUPPLY
STEALTH X STREAM POWER SUPPLY
MOD X STREAM POWER SUPPLY

POWER TO THE PEOPLE

OCZ...Bringing Gamers and Power Together. There is an OCZ power supply for everyone. Today's gaming systems feature vast performance capabilities that require rock-solid, reliable power whether you are running dual-GPUs or an overclocked platform. OCZ's diverse lineup of premium power supplies has something for everyone with configurations ranging from 600W to 1010W. Check out ocztechnology.com and get on your way to finding the perfect power match for all your computing needs.

ocztechnology.com

OCZ Technology Inc.
860 E. Arques Ave.
Sunnyvale, CA 94085 USA
(408) 733-8400 Phone
(408) 733-5200 Fax
(408) 733-8400 Sales

Available at:

newegg.com
zipzoomfly.com
frys.com
outpost.com
monarchcomputer.com
tigerdirect.com
mwave.com
pcclub.com
ncix.com
microcenter.com
directron.com
buy.com
pcmall.com
atacom.com
clubit.com

COPY & CONVERT

ALL YOUR MOVIES AND MUSIC

ANYDVD TO THE RESCUE

Lucky for us, there is an easier way to bypass HDCP

We've long been fans of AnyDVD's smooth decryption. The app sits in your taskbar and automatically decrypts discs on the fly as you drop them into your drive. Now, the makers of AnyDVD have brought the exact same functionality to HD DVD and Blu-ray discs.

For a mere $80, AnyDVD HD (www.slysoft.com) will let you play your HD DVD or Blu-ray discs on any monitor. The drag 'n' drop decryption doesn't work quite as well as it does with old-fashioned DVDs, but it's fine for playback, and it's getting better every week.

CAT AND MOUSE COPY PROTECTION

Now that AACS encryption has been circumvented, it's only a matter of time before Hollywood makes its next move

One of the biggest changes to the HD DVD and Blu-ray formats is the inclusion of copy-protection measures that can adapt as exploits and cracks are found. Since the current decryption schemes for both formats are based on exploits from a few software players, it's only a matter of time before the studios release movies that won't play on that software or that patch the software breaches. These changes could obviously affect the fates of BackupHDDVD and AnyDVD. In six months, next-gen discs could be impervious to decryption again, so keep that in mind before you spend money on hardware or software to play these formats. If you want to keep up with day-to-day happenings in the HD scene, visit **www.boingboing.net** and **www.doom9.org.** Boing Boing delivers news on major cracks and the political fallout, while the folks at doom9 focus on the action end of the news—if you get our drift. If you choose to participate in the doom9 community, make sure you read and follow its rules!

HARDWARE MATTERS

Know what to upgrade to end slow encodes

Take that you damned videocard! The CPU is still king when it comes to encoding—which is the number-one time-suck in most media-archiving chores. We tested how long it would take AutoGK to encode a set of ripped VOB files from a local hard disk. For our test, we used an EVGA 680i SLI motherboard equipped with a quad-core 2.66GHz Intel Core 2 Extreme QX6700 processor, 2GB of RAM, Windows XP, and a GeForce 8800 GTX card. (In our experience, the hard disk is not a factor in encoding—we found virtually no difference when reading, encoding, and writing the files to a 400GB WD SATA drive versus faster hard-drive arrays.)

Our tests proved that when it comes to encoding, the CPU makes all the difference. The VOB files were read from a separate WD 10,000rpm Raptor X and written to a 4GB Gigabyte i-RAM drive. Disabling individual cores within the BIOS, we ran the same encode using four cores, two cores, and one core. The verdict? More cores equals better performance. With one core, it took 71 minutes to encode the files. With two cores, it dropped to 43 minutes, and with all cores ticking, the encode dropped to 30 minutes. And the Xvid codec included with AutoGK isn't fully optimized to run quad cores yet—it uses just three. As the codec matures, the quad-core times will just get better. MPC

Solve Your Own PC Problems!

Learn to repair PCs and save money, or earn great money in a new career!

With millions of PCs in use today, troubleshooting problems has become an important in-demand skill. In fact, jobs for PC Repair Technicians are projected to grow by 2014!* Skilled PC Repair Technicians can earn over $54,000 per year.**

Penn Foster provides programs that are...

Job Focused. Our training gives you the knowledge and skills you need to make your own PC repairs. Qualify for a promotion, a pay raise, or a new job. You can even start your own PC Repair business.

Convenient. You choose the time and place to complete your coursework. All learning materials are sent directly to your door. Study online, in print, or a combination of both. Expert faculty and a helpful support staff are just a phone call or an email away.

Accredited. Penn Foster Career School and Penn Foster College are nationally accredited by the Distance Education and Training Council (DETC). Penn Foster Career School is also regionally accredited by the Middle States Commission on Secondary Schools for its high school and vocational-technical programs.

Affordable. We offer 0% interest financing and customized monthly payment plans to best meet your needs.

You'll receive a FREE Career Catalog. Read about exciting new career choices and rewarding job opportunities.

Current students and graduates are notified of exclusive job openings submitted directly to Penn Foster by employers from around the country. Graduates of Penn Foster can take advantage of Penn Foster Career Services, which include access to job searches, tips on interviewing, information on preparing a cover letter, and resume building with the help of a Certified Professional Resume Writer.

Contact us today for FREE information

For Fastest Service Call Toll Free:

1-800-572-1685 ext. 5763

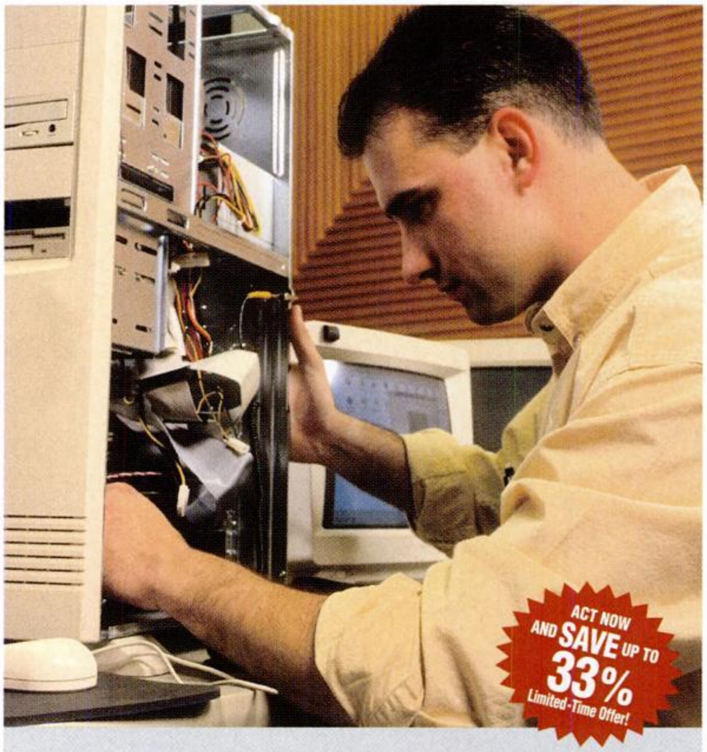
Call anytime, 24 hours a day, 7 days a week.

Visit:

www.PennFoster.edu

Online enter ID# AXHS77T

Or mail coupon today.


ACT NOW AND SAVE UP TO 33%
Limited-Time Offer!

"Thanks to Penn Foster, I earned a pay raise at work. As a believer in the importance of continuing education, I have recommended Penn Foster to others, and I'll continue to do so. They sure helped me!"

- Steven A. Wright, NC

265G

PENN FOSTER
CAREER SCHOOL

925 Oak Street
Scranton, PA 18515-0700

☐ **27 PC REPAIR**

TECHNOLOGY
- ☐ 54 AutoCAD®
- ☐ 105 Computer Graphic Artist
- ☐ 53 Desktop Publishing & Design
- ☐ 37 Visual Basic® .NET Programmer
- ☐ 36 Visual C#® .NET Programmer
- ☐ 83 Web Page Designer

FINANCE & BUSINESS
- ☐ 15 Home Inspector
- ☐ 08 Paralegal
- ☐ 70 Small Business Owner

HIGH SCHOOL
- ☐ 07 Penn Foster High School

PENN FOSTER
COLLEGE

Administrative Office
14300 N. Northsight Blvd., Suite 111
Scottsdale, AZ 85260

ASSOCIATE DEGREE PROGRAMS
- ☐ 64 Applied Computer Science
- ☐ 60 Business Management
- ☐ 404 E-Commerce Administration
- ☐ 407 Graphic Design
- ☐ 412 Human Resources Management
- ☐ 403 Internet Multimedia and Design
- ☐ 408 PC Maintenance Technology
- ☐ 402 Web Programming

Please send me FREE information on the Career School or College program I have selected above. No obligation. Choose ONE only.

Name ____________________ Age ______
Street ____________________ Apt. # ______
City/State ____________________ Zip ______
Phone (   ) ____________________
Email ____________________

Mail coupon to Penn Foster, Student Service Center,* Dept. AXHS77T
925 Oak Street, Scranton, PA 18515-0700.

* Under contract with Penn Foster College, AZ.

---

* Growth represents a ten-year period ending 2014. Source: *National Industry-Occupation Employment Matrix*, a publication of the U.S. Bureau of Labor Statistics.

**Salary information is based on the *Occupational Outlook Handbook, 2006-07 Edition*, a publication of the U.S. Department of Labor. Individual student earnings vary based on experience.

ANOTHER MAXIMUMPC CHALLENGE

THE DOUBLE-BLIND MUSIC-LISTENING TEST

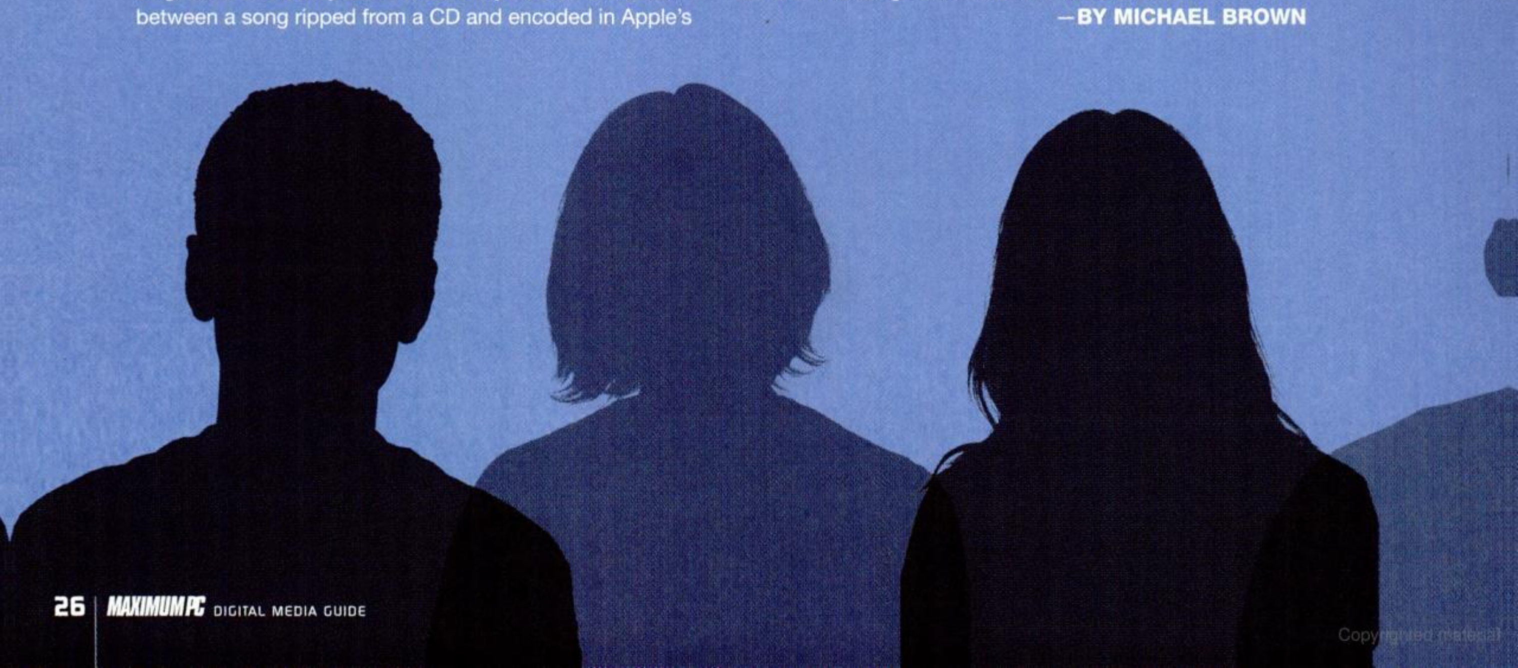
Can you hear the difference between AAC songs encoded at 128Kb/s bitrates and those encoded at 256Kb/s?

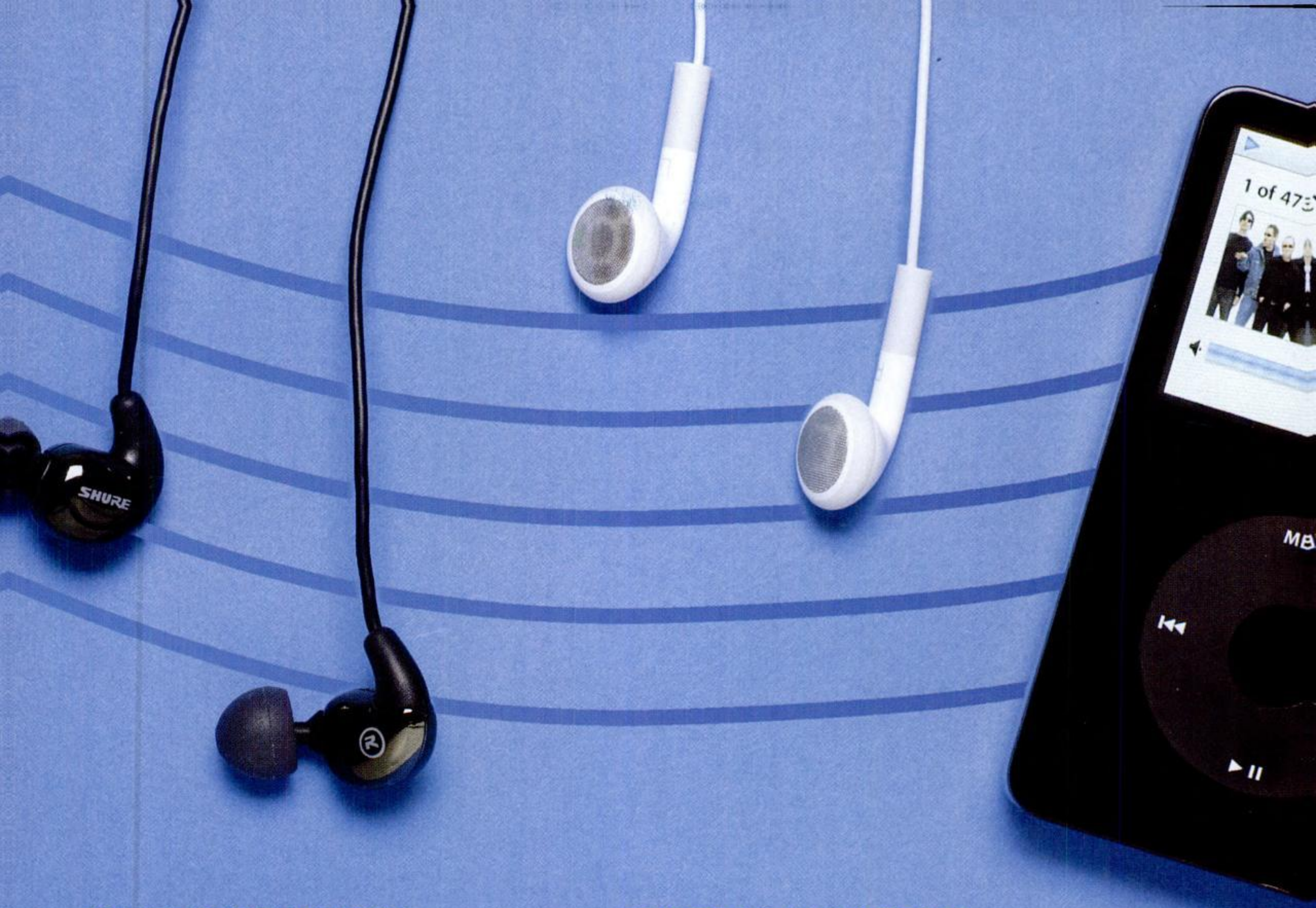
The first cracks in the record industry's mind-numbingly dumb position that commercial music must be encumbered with soul-sucking digital rights management technology have begun to appear: Apple—in partnership with EMI—is hawking DRM-free music at twice the bitrate of its standard fare (256Kb/s vs. 128Kb/s) and charging a $0.30-per-track premium. We're all for DRM-free music, but 256Kb/s still seems like a pretty low bitrate—especially when you're using a lossy codec.

So we decided to test a random sample of our colleagues to see if they could detect any audible difference between a song ripped from a CD and encoded in Apple's lossy AAC format at 128Kb/s and the same song ripped and encoded in lossy AAC at 256Kb/s. Does the higher bitrate deliver additional value, or is the added cost justified solely by the absence of DRM?

We hypothesized that no one would be able to discern the difference using the inexpensive earbuds (MSRP: $30) that Apple provides with its product, so we also acquired a set of high-end Shure SE420 earphones (MSRP: $400). We were confident that the better headphones would make the task much easier, since they would reveal more flaws in the songs encoded at lower bitrates.

—BY MICHAEL BROWN



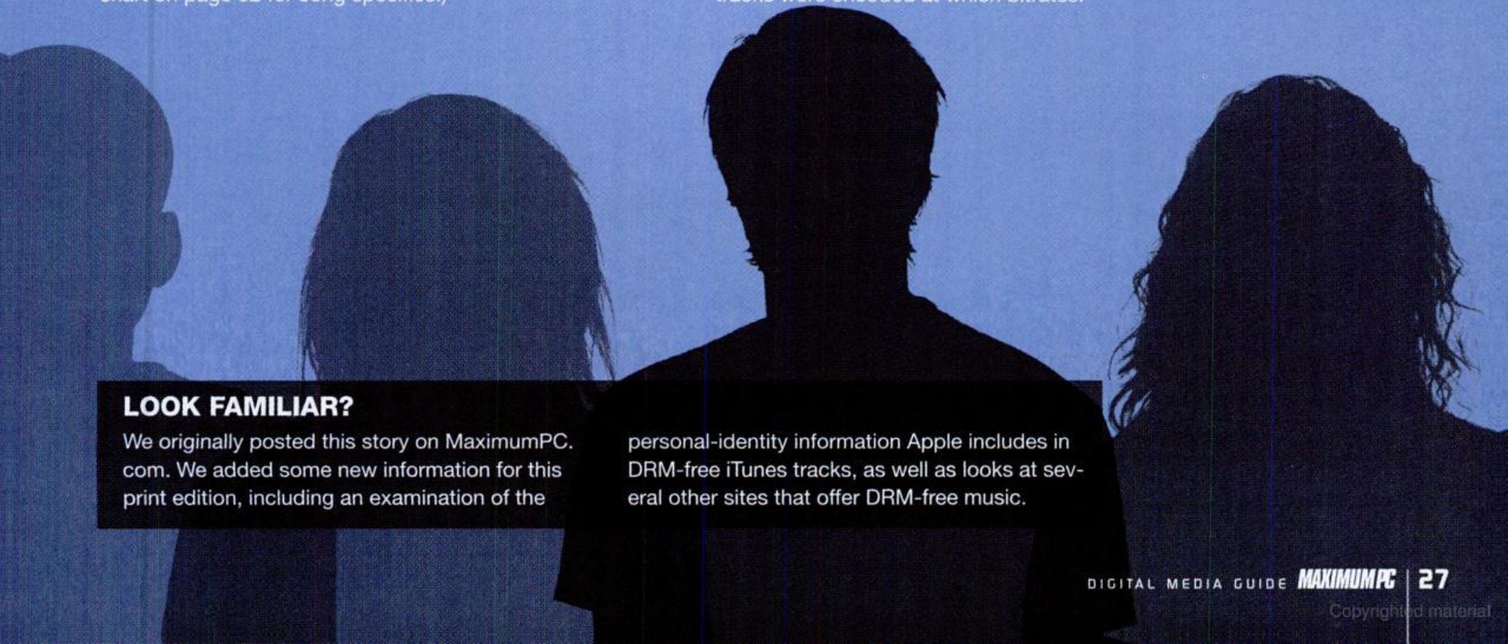


THE SUBJECTS

Our 10 test subjects range in age from 23 to 56. Seven of the 10 are male. Eight are editors by trade; two are art directors. Four participants have musical backgrounds (defined as having played an instrument and/or sung in a band). We asked each participant to provide us with a CD containing a track they felt intimately familiar with. We were hoping participants would choose a diverse collection of music, and they did: Classical, jazz, electronica, alternative, straight-ahead rock, and pop were all represented. (See the chart on page 52 for song specifics.)

METHODOLOGY

We used iTunes to rip the tracks from a source CD (once at 128Kb/s and again at 256Kb/s) and copied them to a fifth-generation 30GB iPod. We asked each participant to listen with the Apple buds first and to choose between Track A and Track B or express no preference. We then tested using the SE420s and asked the participant to choose between Track C and Track D or express no preference. The tests were administered double blind, meaning that neither the test subject nor the person conducting the test knew which tracks were encoded at which bitrates.



LOOK FAMILIAR?

We originally posted this story on MaximumPC.com. We added some new information for this print edition, including an examination of the personal-identity information Apple includes in DRM-free iTunes tracks, as well as looks at several other sites that offer DRM-free music.

THE RESULTS

The absence of even a single country music fan was just one of the surprise findings of our challenge

COLOR US CORRECTED

The biggest surprise of the test actually disproved our hypothesis: Eight of the 10 participants expressed a preference for the higher-bitrate songs while listening with the Apple buds, compared to only six who picked the higher-quality track while listening to the Shures. Several of the test subjects went so far as to say they felt more confident expressing a preference while listening to the Apple buds. That didn't necessarily translate into a preference for the Apple buds, however (more on that later).

LEAVE IT TO THE OLD FOGEYS

Age also factored differently than we had expected. Human hearing tends to deteriorate as people get older, but all three of our subjects who are over 40 years old correctly identified the higher bitrate tracks using both the Apple and the Shure earphones. Three of the four subjects aged between 31 and 40 correctly identified the higher bitrate tracks with the Apple earbuds, but only two were successful when listening with the Shures. Two of the three under-30 subjects picked the higher-quality tracks with the Apples, but only one from that group made the right choice with the Shures. All four musicians picked the higher-quality track while listening to the Apples, and three of the four were correct with the Shures.

Despite being less able to detect the bitrate of the songs while listening to the Shure SE420 earphones, eight of 10 subjects expressed a preference for them over the Apple buds. Several people commented on the Shure's ability to block extraneous noise. While listening to the SE420s, one person remarked, "Wow, I'd forgotten that wood-block sound was even in this song." Another said, "The difference between the Shure earphones and the Apple earbuds was more significant than the difference between the song encoded at 128Kb/s and the one recorded at 256Kb/s." One of the two people who expressed a preference for Apple's product told us, "It seemed like I got better kick from the bass."

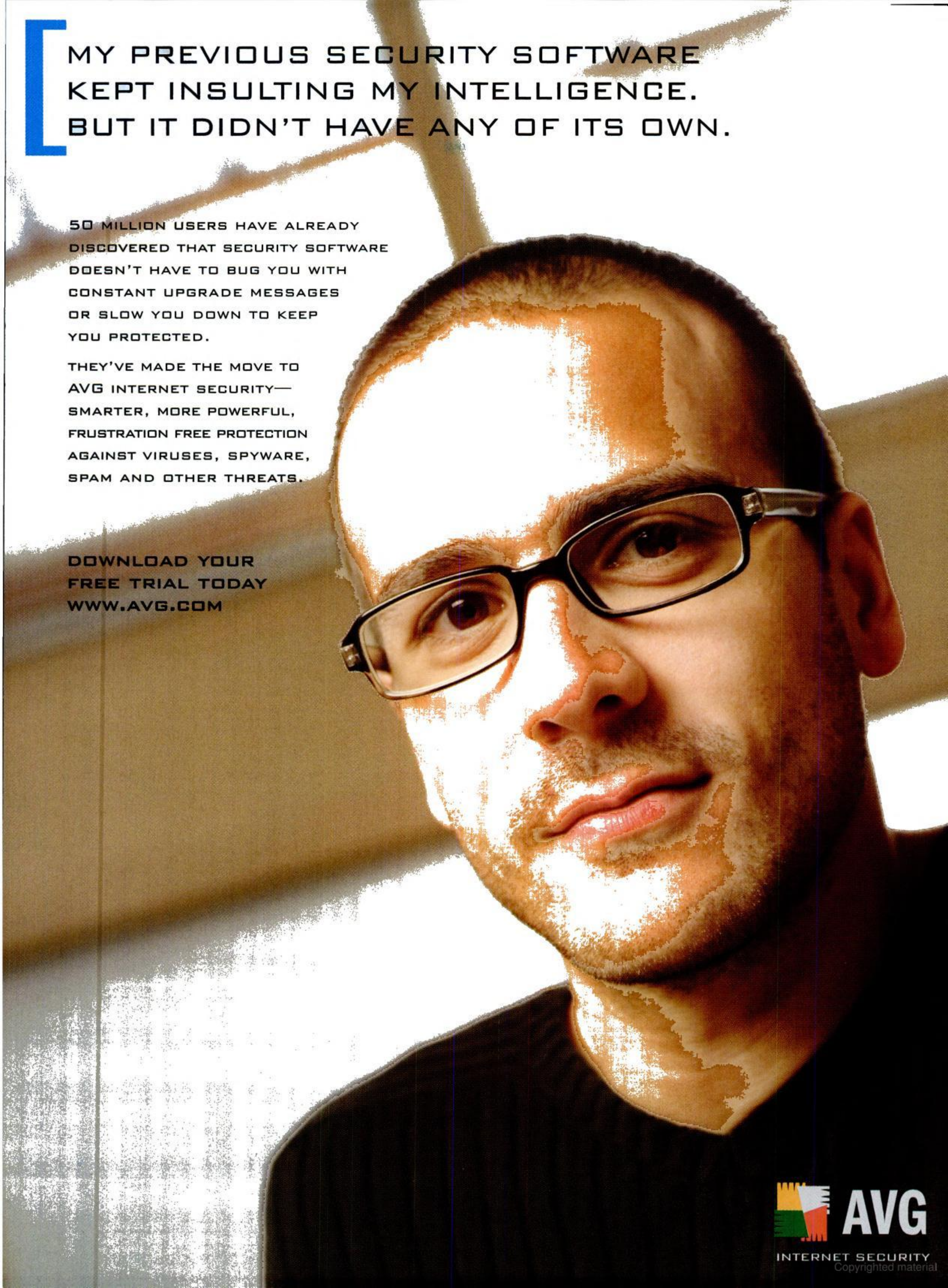
THE WEAKEST LINK

Could it be that the performance of the Shures masked the flaws in the tracks encoded at lower bitrates? We typically experience just the opposite: High-end listening gear tends to reveal flaws. Your audio system is only as strong as its weakest link, and if you're using cheap earphones, you're missing out on what your MP3 player is capable of delivering. The SE420s fit tight inside your ear canal, so they isolate your ears from extraneous noise. Many of our listeners found that they could turn the player's volume down significantly because the earphones weren't compet-

Continued on page 54→

THE TEST TRACKS

ARTIST	ALBUM	TRACK	LISTENER COMMENTS
ANDRES SEGOVIA	The Legendary Andres Segovia in an All-Bach Program	Chaconne (from Violin Partita No. 2)	"I've listened to this recording 40 billion times. I know every nuance in it.
GUNS N' ROSES	Civil War	Use Your Illusion II	"This song is meant to be played loud. Axl Rose's voice and the guitars should help me tell the difference."
HÜSKER DÜ	New Day Rising	Celebrated Summer	"I've been listening to a lot of Hüsker Dü lately. Sometimes you rediscover a band and wonder why you haven't listened to them for so long."
MASSIVE ATTACK	100th Window	Future Proof	"I know this song so well. I figured I'd be able to tell if I'm hearing everything that should be there."
MINGUS BIG BAND	Gunslinging Birds	Jump Monk	"I'll be listening for dynamic range in the horns. I think I'll perceive differences in the sound of the piano solo and the upright bass, too."
NINE INCH NAILS	Year Zero	The Great Destroyer	"It has the typical chord progression of a pop song, and then it goes into this crazy techno solo. I thought the variety would help me identify the differences in the bitrates."
STEELY DAN	Aja	Josie	"This may be the world's most fanatical band when it comes to recording. One of the things I'll be listening for is the chimes in the opening."
STEVIE WONDER	Original Musiquarium I Vol. II	Sir Duke	"I think I'll be able to hear the difference in the sound of the horn section at the beginning of the song—I think it will sound brighter at the higher bitrate."
SUNDAY'S BEST	Where Are You Now?	Truest You	"The drummer in this band is cymbal crazy. I think it will be hard to capture that sound accurately at a low bitrate."
TEA LEAF GREEN	Taught to Be Proud	If It Wasn't for the Money	"This is from a CD that I listen to a lot; I'm very familiar with it."



MY PREVIOUS SECURITY SOFTWARE KEPT INSULTING MY INTELLIGENCE. BUT IT DIDN'T HAVE ANY OF ITS OWN.

50 MILLION USERS HAVE ALREADY DISCOVERED THAT SECURITY SOFTWARE DOESN'T HAVE TO BUG YOU WITH CONSTANT UPGRADE MESSAGES OR SLOW YOU DOWN TO KEEP YOU PROTECTED.

THEY'VE MADE THE MOVE TO AVG INTERNET SECURITY—SMARTER, MORE POWERFUL, FRUSTRATION FREE PROTECTION AGAINST VIRUSES, SPYWARE, SPAM AND OTHER THREATS.

DOWNLOAD YOUR
FREE TRIAL TODAY
WWW.AVG.COM

AVG
INTERNET SECURITY

Continued from page 52

ing with environmental racket. That not only makes your listening experience more enjoyable, but can also prevent hearing loss.

Despite what Apple charges for a set of its replacement buds, the earphones that come with 90 percent of the digital media players on the market are throwaway items—they're only in the box so you'll have something to listen with when you bring the player home. Do yourself a huge favor and dump 'em. Spending a few bucks more for something that sounds better, feels better, and will last longer just makes sense; after all, you only get one set of ears in life.

WHERE'S THE VALUE?

To our subjects' ears, there wasn't a tremendous distinction between the tracks encoded at 128Kb/s and those encoded at 256Kb/s. Despite the fact that most people identified the higher-quality track, no one was absolutely certain about their choices with either set of earphones, even after an average of five back-to-back A/B listening tests. That tells us the value of Apple's and EMI's more expensive tracks lies solely in the fact that they're free of DRM restrictions.

And as much as we dislike DRM, we just don't think DRM-free tracks alone are worth paying an extra 30 cents for. Interestingly enough, you can buy an entire album encoded at the higher bitrate for the same price as the album encoded at the *lower* bitrate. But if you purchased the lesser-quality album through iTunes previously and now want to upgrade, you're screwed: Apple will charge you 30 percent of the original album price for the higher bitrate.

In the end, Apple's move doesn't change our opinion that the best way to acquire commercial digital music remains buying CDs: You can rip and encode them at any bitrate you want, you can transfer them to any device you want, you won't have any DRM issues to worry about, and you won't have to pay anything extra for them. If Apple wants to

Continued on page 56→

IDENTITY TAGS IN ITUNES

Just because a music track lacks DRM doesn't mean you can use it any ol' way you choose

Apple and EMI are giving online music buyers what they asked for: songs that can be played on any device. But the absence of DRM doesn't grant us the right to share the music we've purchased with anyone we choose. That's piracy, and it's both illegal and immoral.

Although there is no DRM embedded in these tracks, there is information that could be used to trace the song back to you should you decide to share it—especially if it's put on a peer-to-peer network. This is nothing new—it's always been in iTunes tracks. To find it, launch iTunes, right-click any song you've purchased, and select Get Info. Click the Summary tab and you'll see information related to the song (size, bitrate, sample rate, etc.), the date you purchased it, how many times you've played it, the name of the person who purchased it, and the buyer's iTunes account name.

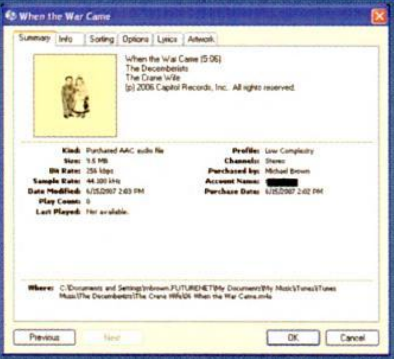
Apple can't use this information to track you or what you're doing, but it can trace music that you've illegally shared back to you. If you lose your iPod or someone steals it and uploads the music to a P2P site, the authorities might accuse you of putting it there. We're not so paranoid that having our name and account information embedded in our music bothers us, but if it bothers you, there are at least two simple ways to strip it out.

The easiest method is to convert the tracks to MP3 format from within iTunes. Here's how: Click the Edit menu and choose Preferences. From the drop-down menu labeled "Import Using," choose "MP3 Encoder" and click OK. Select the unprotected track or tracks you wish to convert, click the Advanced menu, and choose "Convert Selection to MP3." If you'd like to convert an entire folder containing unprotected tracks, hold down the Shift key and choose "Convert Selection to MP3." A dialog box will open, enabling you to choose the folder containing the music you'd like to convert. Note: Your original track will remain intact, but this method won't work on protected tracks.

The drawback to the file-conversion approach is that transcoding between the two lossy compression algorithms will likely result in the loss of some audio quality. A better alternative is to manually strip out the data using the freeware utility Atomic Parsley (a Google search will reveal a link). Once you've downloaded and installed the program (uncompress it in the directory containing your music), open a command-line window, navigate to the folder containing the files you wish to alter, and type the following command (replacing "song title.m4a" with your song's name. And be sure to put two hyphens in front of "manual..."):

```
Atomicparsley "song title.m4a"
--manualAtomRemove "moov.udta.meta.
ilst.apID"
```

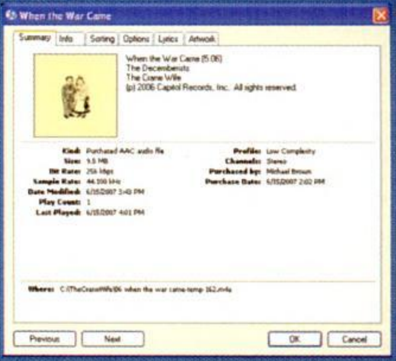
Atomic Parsley will create a temporary file that doesn't contain the metadata you removed. Import this to iTunes to make sure it plays properly and then back up the original file. When you examine the new track's metadata with iTunes's Get Info command, you'll see it no longer contains your iTunes account name. Of course, crafty Apple may have also placed your info in a less-obvious location.



When the War Came (5:06)
The Decemberists
The Crane Wife
(p) 2006 Capitol Records, Inc. All rights reserved.

Kind: Purchased AAC audio file
Size: 9.5 MB
Bit Rate: 256 kbps
Sample Rate: 44.100 kHz
Date Modified: 6/15/2007 2:03 PM
Play Count: 0
Last Played: Not available.
Profile: Low Complexity
Channels: Stereo
Purchased by: Michael Brown
Account Name: [redacted]
Purchase Date: 6/15/2007 2:02 PM

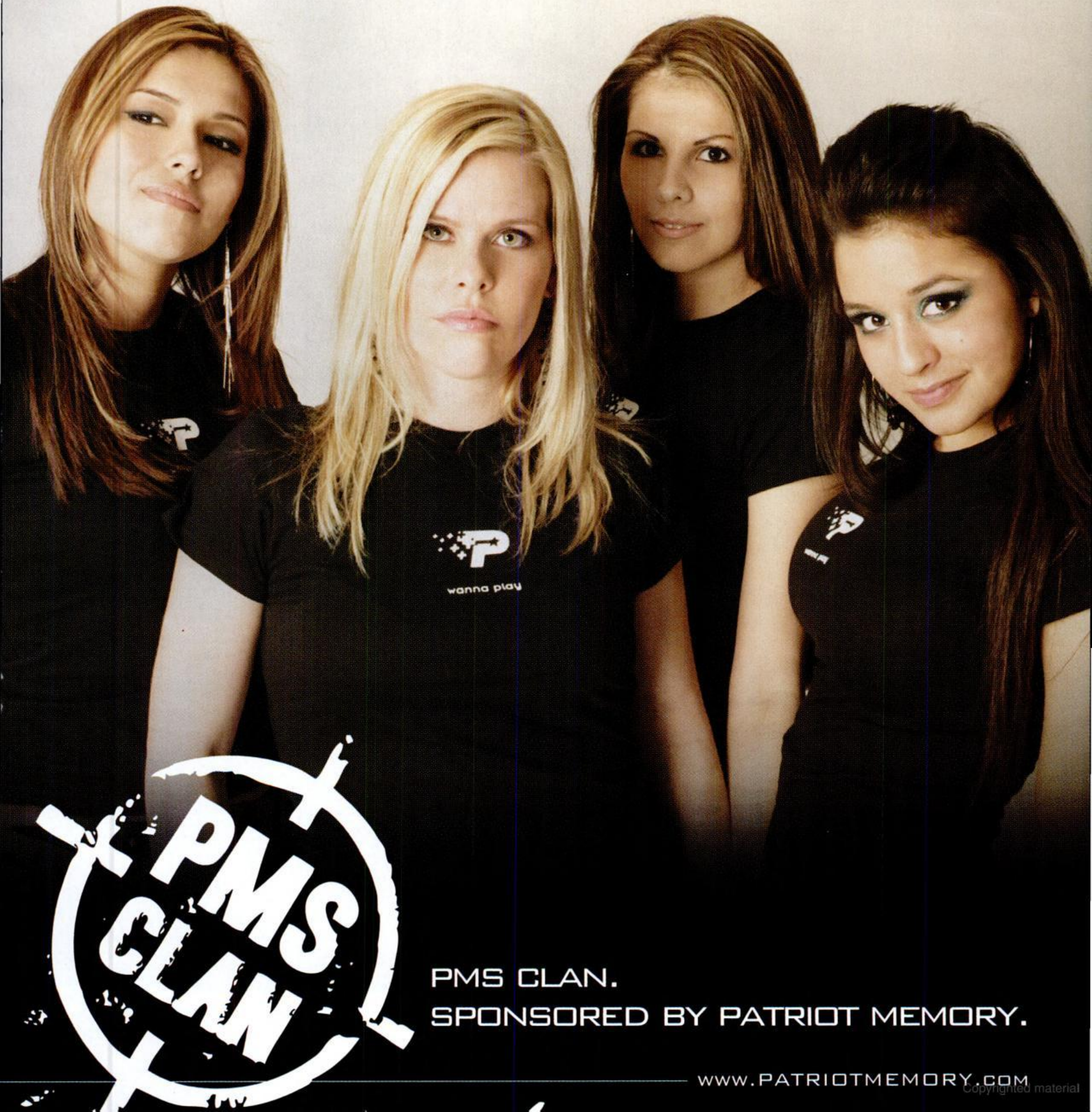
ITunes will encode your personal name and your iTunes account info into the metadata of each track you purchase on the service.



When the War Came (5:06)
The Decemberists
The Crane Wife
(p) 2006 Capitol Records, Inc. All rights reserved.

Kind: Purchased AAC audio file
Size: 9.5 MB
Bit Rate: 256 kbps
Sample Rate: 44.100 kHz
Date Modified: 6/15/2007 3:43 PM
Play Count: 1
Last Played: 6/15/2007 4:01 PM
Profile: Low Complexity
Channels: Stereo
Purchased by: Michael Brown
Purchase Date: 6/15/2007 2:02 PM

If you're paranoid about having your iTunes account name in your tracks, you can easily remove it using the utility Atomic Parsley.



PATRIOT MEMORY

REVOLUTIONIZING THE GAMING INDUSTRY

PMS CLAN

PMS CLAN.
SPONSORED BY PATRIOT MEMORY.

WWW.PATRIOTMEMORY.COM

Copyrighted material

Continued from page 54

earn *our* money, it will have to offer DRM-free music encoded in a lossless format.

On the other hand, online distribution is a brilliant solution for breaking the record industry's stranglehold on musicians. Frank Zappa said it best in this monologue recorded in 1978, which his son Dweezil remixed and christened "Drooling Midrange Accountants on Easter Hay" for the 2004 DTS release *QuAUDIOPHILIAc*.

> *"All decisions about who gets signed and what happens to the record are made by these drooling little midrange accountants. And everything is based on the numbers games in there. And the taste of the accountants is what is ruling the mass media. It's all just the dollars and cents of exchange. And if you wanna make music that you believe in, the chances of doing it on a major-label basis are nil, because they're all so frightened."*

Zappa didn't live to see the revolution that's happening in music distribution today, but we're sure he would have cheered it on because the major labels are becoming increasingly irrelevant. The Internet has broken down that monolithic barrier that prevented musicians from exposing their works to a large audience. The record industry is more frightened than ever, and as a result, we no longer have to suffer for it. (See the sidebar "Other DRM-Free Music Outlets" for some of our favorite music sources.)

TRACK RESULTS **BREAKDOWN**

ARTIST	TRACK	PICKED HIGH BITRATE TRACK WITH APPLE EARPHONES?	PICKED HIGH BITRATE TRACK WITH SHURE EARPHONES?
NINE INCH NAILS	The Great Destroyer	**Yes**	No
TEA LEAF GREEN	If it Wasn't for the Money	No	No
GUNS N' ROSES	Use Your Illusion II	**Yes**	**Yes**
HÜSKER DÜ	Celebrated Summer	**Yes**	No
MASSIVE ATTACK	Future Proof	**Yes**	No
STEVIE WONDER	Sir Duke	No	**Yes**
MINGUS BIG BAND	Jump Monk	**Yes**	**Yes**
SUNDAY'S BEST	Truest You	**Yes**	**Yes**
ANDRES SEGOVIA	Chaconne (from Violin Partita No. 2)	**Yes**	**Yes**
STEELY DAN	Josie	**Yes**	**Yes**

OTHER DRM-FREE MUSIC OUTLETS

We're encouraged by the growing number of music stores that are willing to trust paying consumers

Apple and EMI aren't the only sources of DRM-free music; in fact, they're not even the first, but they are the biggest. EMI hasn't limited itself to a partnership with Apple; the company has also signed deals with Amazon and PassAlong Networks (www.passalongnetworks.com). Amazon, the 800-pound gorilla of e-tailing, will soon begin selling digital music in MP3 format. PassAlong Networks doesn't sell music directly to the public; it offers a download infrastructure product known as StoreBlocks to retailers such as FYE, which will then sell unprotected 320Kb/s MP3s to the public.

EMusic (www.emusic.com) is an old hand at selling DRM-free MP3s, and it's one of our favorite sources for new music. This online service offers tracks encoded in MP3 format at bitrates of 192Kb/s VBR from a variety of independent labels. You can transfer the tracks to any player, burn them to CD as many times as you'd like, and make as many copies as you'd like (provided, of course, that the copies are for private use).

EMusic is a subscription service: You pay $10 per month to download 30 songs, $15 per month to download 50 songs, and $20 per month to download 75 songs (unused downloads do not roll over). If you want to purchase more music in a particular month without upgrading your subscription, you can purchase a Booster Pack.

Don't like being tied to a monthly subscription? Audio Lunchbox (www.audiolunchbox.com) offers a pay-as-you-go plan ($1 per track) in addition to its subscription model of $10 per month for 40 "credits" (songs typically sell for one credit each), $25 per month for 125 credits, and so on.

Audio Lunchbox
50 FREE DOWNLOADS
BROWSE & FILTER
THIS ALBUM INCLUDES
INDEPENDENT DIGITAL MUSIC

Don't like being tied to a subscription plan? Audio Lunchbox offers an à la carte plan, too.

Amie Street (www.amiestreet.com) also specializes in offering DRM-free music from independent artists. This site doesn't charge a membership fee and also gives away much of its new music for free. Music is sold on a sliding scale based on how popular a song is: Free songs are new or haven't caught on with a wide audience. As a song gains a foothold in the market by racking up downloads, its price rises to a maximum of 98 cents.

Magnatune (www.magnatune.com) is a combo record label and music merchant that lets you listen to all the music from its entire stable of artists for free. If you hear something you like, you can download the album—but you decide how much to pay (with a $5 floor and an $18 ceiling). What's even cooler is that you can also choose the format in which the music is encoded, ranging from MP3 to FLAC or even WAV. This is the most unique business model we've seen in the music industry.

MusicGiants (www.musicgiants.com), our favorite source for high-bitrate tracks from established artists, has so far only dipped its toe in the DRM-free market: It's offering Paul McCartney's new album, *Memory Almost Full*, encoded in WMA Lossless format for $1.29 per track or $15.29 for the entire album. MPC

PCTV
pinnacle
CH
3
6
9
0
T
?
pinnacle
ATSC
DIGITAL TV
NTSC
ANALOG TV
CERTIFIED FOR Windows Vista™
Designed for Microsoft® Windows® XP
Traditional Portable Antenna
Pinnacle High Gain Antenna
TV Signal Level
Buy.com
circuit city
BEST BUY
fry's ELECTRONICS
amazon.com
pinnacle.
A division of Avid

Your key to free HDTV on your PC anywhere.

Pinnacle PCTV™ HD Pro Stick

It's easy to enjoy analog and high-quality digital television in both High Definition (HD) and Standard Definition (SD) with full DVR functionality on your laptop with Pinnacle PCTV HD Pro Stick. The USB 2.0 powered tuner, mini-remote and high gain telescoping antenna are conveniently sized for on the go travel. With pause, TimeShift, and automatic recording functionality, you can access your favorite HD or SD shows wherever, whenever with no service fees.

Get going with HDTV on your PC today at:
www.pinnaclesys.com/StickIt

Pinnacle PCTV HD Pro Stick and other fine Pinnacle products available at:

©2007 Pinnacle Systems, Inc. and its affiliates and/or suppliers. All rights reserved. Pinnacle Systems, Pinnacle PCTV and the Pinnacle pinwheel logo, are registered trademarks of Pinnacle Systems, Inc. and its affiliates in the United States and other countries. All other trademarks are the property of their respective owners. Keys and keychain are not included with product. Not an actual keychain. 072607

Shuttle® Computers
Glamor
Hi-Def your Vision XPC
Power at Your Finger Tips
Fingerprint Recognition
intel G33 EXPRESS CHIPSET
Fingerprint Register Wizard
Please Swipe Your Finger
Back
Cancel
dts Connect
HDMI
DOLBY DIGITAL LIVE

World's First Biometric Fingerprint Recognition SFF Barebone

More Powerful Computing
Supports upcoming 45nm Intel multi-core processors and DDR2 1066

All solid-state capacitors motherboard design
Enhance system component lifetime and reliability

Integrated Biometric Fingerprint Recognition
Ensure your personal documents and information are kept safe.

Innovative USB Speed-Link Technology
File sharing between 2 PC is much easier and faster than before

HDMI - Dolby Digital Live – DTS
Experience rich clarity high-definition entertainment

SG33G6 Deluxe

- Supports new upcoming 45nm Intel® Core™2 Multi-core processors
- Best multimedia experience with HDMI, Dolby® Digital Live & DTS 7.1 connect surround sound
- Enjoy a richer video experience with the Intel® GMA 3100 featuring Intel® Clear Video Technology
- Supports Microsoft® Windows® Vista™ Premium
- All solid capacitor motherboard design to enhance durability
- Features 802.11 b+g WiFi, Bluetooth and Fingerprint recognition
- Features Speed-Link technology for easy file transfer
- Features high speed e-SATA, Gigabit Ethernet and IEEE 1394 connectivity

SG33G5

- Supports new up coming 45nm Intel® Core™2 Multicore processors
- Dual Channel DDR2 800 support for greater system performance
- Enjoy a richer video experience with the Intel® GMA 3100 featuring Intel® Clear Video Technology
- Supports Microsoft® Windows® Vista™ Premium
- All solid capacitor motherboard design to enhance durability
- Supports HDMI easily enjoy high definition audio & video quality experience
- Features high speed e-SATA, Gigabit Ethernet and IEEE 1394 connectivity
- Dynamic overclocking technology for optimized system performance

- 1.888.XPC.1818
- www.us.shuttle.com/barebone
- Sales inquiry: sales@us.shuttle.com

©2007 Shuttle Computer Group, Inc. All rights reserved. Product specifications are subject to change without notice. Not responsible for photographic or typographic errors. Other names and brands may be claimed as property of others.

MediaMonkey
Album Art (Now Play
Options...
19. Bei Mir Bist Du Schon
Benny Goodm
Player
0 06 37
Death Cab For Cutie

Overhaul Your **MP3 Library**

Tired of inconsistent volume, messed-up metadata, and missing album art? Here's how to fix all three.

If your digital-music library is more than a few years old, chances are it contains songs from a variety of sources: ripped CDs, peer-to-peer services, online music stores, good-hearted friends, and so on. The only problem with such an eclectic collection is that nothing's consistent: Volume levels jump up and down from one song to another, album art shows up sporadically, and the ID3 tags—well, let's just say the band that sings "American Idiot" isn't called Greene Dye. Thankfully, these are easy problems to fix, if you have the right tools. We'll show you how to fix tags and album art as well as tweak volume levels using freeware apps.

BY RICK **BROIDA**

TIME **04:00** HOURS:MINUTES

WHAT YOU NEED

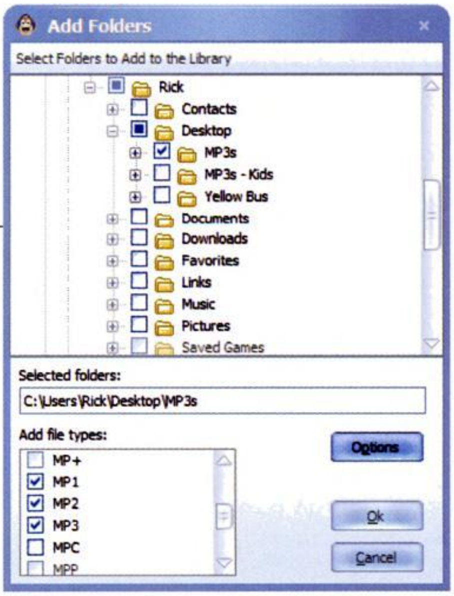
- **MEDIAMONKEY**
  Free, www.mediamonkey.com
- **MP3GAIN**
  Free, mp3gain.sourceforge.net

1 Download MediaMonkey

First, download and install MediaMonkey (**www.mediamonkey.com**). You might be enticed to pay $20 for the full version, but for our purposes, the free version gets the job done. We used MediaMonkey 2.5, though at press time a 3.0 version was in beta testing. (Note: This is also on the CD bundled with this issue – aren't we nice?)

2 Add Your Tracks

The first time you run MediaMonkey, it will scan your hard drive(s) for audio files. You can let it scan everything or just the folder(s) you choose. You can also specify what file types you want it to add (the program supports just about every format under the sun, from FLAC to WMA). Want MediaMonkey to check for duplicate tracks? Click the Options button and enable the appropriate checkbox.



Add Folders

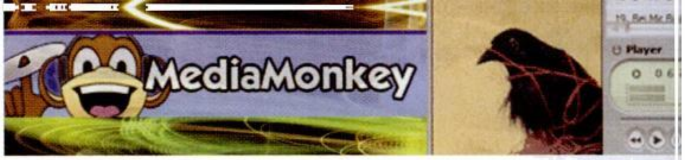
Select Folders to Add to the Library

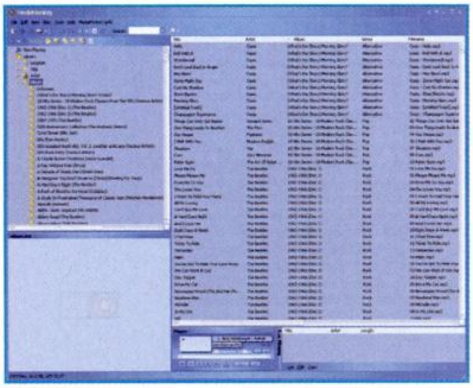
- ■ Rick
  - ☐ Contacts
  - ■ Desktop
    - ☑ MP3s
    - ☐ MP3s - Kids
    - ☐ Yellow Bus
  - ☐ Documents
  - ☐ Downloads
  - ☐ Favorites
  - ☐ Links
  - ☐ Music
  - ☐ Pictures
  - ☐ Saved Games

Selected folders: C:\Users\Rick\Desktop\MP3s

Add file types:
- ☐ MP+
- ☑ MP1
- ☑ MP2
- ☑ MP3
- ☐ MPC
- ☐ MPP

Start by choosing one or more folders that contain you music collection.





For optimal sorting of your song library, choose Album View.

3 Get Organized

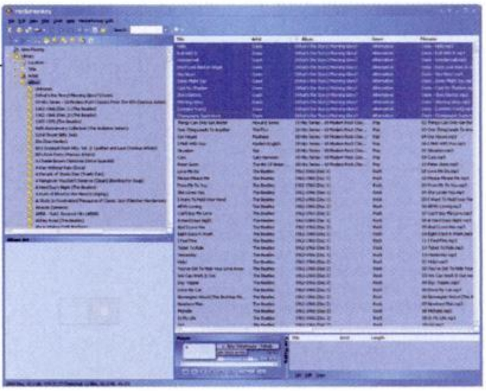
The easiest way to fix album art and ID3 tags (aka metadata) is to sort your library by album, which will allow you to apply changes and updates to multiple tracks at once. You'll have to attend to singles individually, but the Album view still provides the most efficient means of making changes.

In MediaMonkey's navigation tree, click Album. You'll see your songs in the track list (the main window) sorted by the album name listed in the metadata. This is where things can get a bit tricky because if you have missing or inaccurate tags, the list itself won't be accurate. Fortunately, you can spot-check songs as you go, examining track title, artist, and other tags—along with the actual filename, which is usually correct.

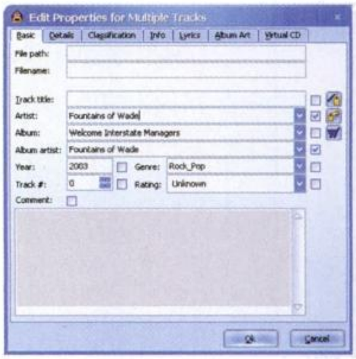
4 Fix a Stray Tag

Fixing errors in a band's name (or adding a name) is a snap. First, select all the tracks in the album you want to fix. MediaMonkey lets you apply global changes to multiple tracks: Press Shift-Enter to open the Edit Properties box; then type the correct name into the Artist field. If any other global changes need to be made, do it now. Just be sure to leave Track Title and Track Number alone, or you'll overwrite the information for all the tracks, and they'll have the same name.

If you're not thrilled about making manual adjustments to your songs' tags or you're just not sure you have the right information, there's an automated (albeit riskier) solution. See Step 6.



MediaMonkey can make changes to one track at a time or a batch of tracks.



Edit Properties for Multiple Tracks

File path:

Filename:

Track title: ☐

Artist: Fountains of Wade ☑

Album: Welcome Interstate Managers ☐

Album artist: Fountains of Wade ☑

Year: 2003 ☐ Genre: Rock_Pop ☐

Track #: 0 ☐ Rating: Unknown ☐

Comment: ☐

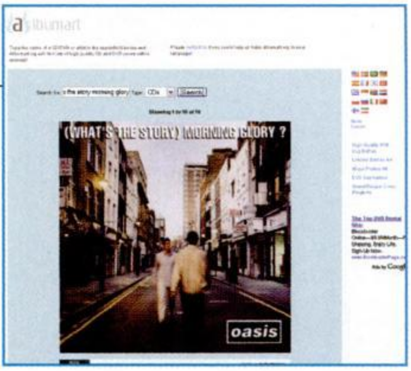
Use the Edit Properties dialog to apply global changes to an album's worth of ID3 tags.

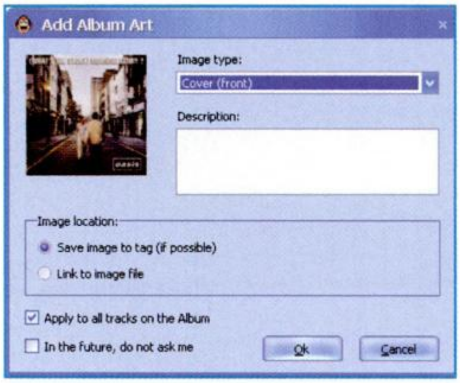
5 Fix Missing Album Art

Album art isn't essential to enjoying your music library, but for completists it *is* a necessity. If you're an iTunes user, you've no doubt discovered that the program can now fetch art for all the songs in your library. However, this art doesn't get embedded in the actual files, so if you play your music elsewhere, the images won't appear. It's a similar situation with Windows Media Player, which places artwork files in the folder containing the album. Not all portable players will absorb these files when you sync with your PC.

MediaMonkey does it right, adding album art to each song's metadata, so it goes where the song goes. Select one or more tracks for a particular album and then fire up your browser and head to **www.albumart.org**. Search for the album in question, right-click the appropriate image, and copy it to your clipboard. Head back to MediaMonkey, right-click in the empty Album Art pane, and choose Paste. An options box will appear; all the default choices should be suitable, so click OK and you're done.

You can accomplish this task more quickly by using the automated method described in the next step.





Add Album Art

Image type: Cover (front)

Description:

Image location:

● Save image to tag (if possible)

○ Link to image file

☑ Apply to all tracks on the Album

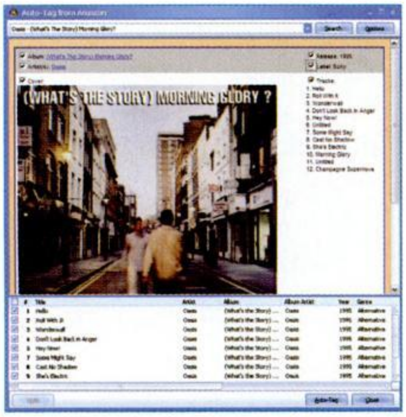
☐ In the future, do not ask me

The Albumart.org site is a great resource for album covers, which you can copy and paste into MediaMonkey.

"A MUST-PLAY"
– NEW YORK TIMES
"HOT CONTENDER FOR PC GAME OF THE YEAR"
– GAMEDAILY
"IT'S AWESOME"
– 1UP.COM
"THE GAME JUST PLAIN ROCKS"
– IGN VAULT
EDITORS' CHOICE gamespy
IGN.COM EDITORS' CHOICE AWARD
GAME INFORMER PC GAME OF THE MONTH
GAMING ILLUSTRATED Editor's CHOICE SUPERIOR PRODUCT!
The Lord of the Rings Online
Shadows of Angmar
ONE GAME TO RULE THEM ALL.
UNCOVER THE HIDDEN HISTORY OF MIDDLE-EARTH
JOIN THE FORCES OF SAURON IN MONSTER PLAY
FREE CONTENT UPDATE FOR SUBSCRIBERS
TEEN T CONTENT RATED BY ESRB
Blood and Gore
Use of Alcohol and Tobacco
Violence
PC DVD-ROM SOFTWARE
turbine
MIDWAY
AVAILABLE NOW!
LOTRO.COM
Games for Windows

MediaMonkey
Player

6 Fix Tags and Album Art Automatically



MediaMonkey can look up tag information and album art from our good friend Amazon.

Good news! MediaMonkey can automatically retrieve both metadata and album art, thus saving you a bit of time over using the aforementioned manual methods. However, you still have to select the songs and initiate the process, which goes like this:

After selecting your songs, press Ctrl-L to launch MediaMonkey's Auto-Tag from Amazon feature. In a moment, you should see a page of album info, including cover art, and a song list. If it didn't fetch the right info (which happens sometimes, especially if the ID3 tags are out of whack), clear the search field and try entering the album name manually. You can also click the search field's pull-down tool to see if there are any results that match more closely.

Make sure the checkboxes for all the desired tag elements are selected: Album, Artist(s), Release, Label, and Songs. If you didn't already update your album art and want that fixed too, check that box. The box at the bottom shows you a preview of the post-fix tracks. If everything appears to be in order, click the Auto-Tag button. Presto: MediaMonkey updates the metadata for the selected tracks with the information gleaned from Amazon.

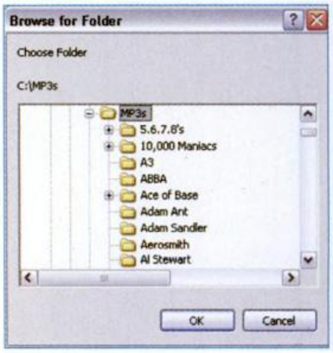
The only thing that remains is to repeat the process for all your songs and albums. Depending on the size of your library, this could take a few hours, a weekend, or longer—but it's worth it to end up with a squeaky-clean, art-enhanced music collection.

7 Level Your Track Volumes

Download MP3Gain from **http://mp3gain.sourceforge.net**. True to its name, the program supports only MP3 files. If the bulk of your library is in a different format, consider waiting for MediaMonkey 3.0, which will improve its existing volume-leveling capabilities (which aren't great) to more closely match MP3Gain's.

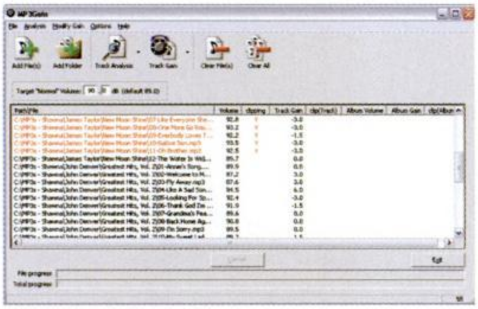
8 Introduce MP3Gain to Your Music

Click the Add Folder button; then choose the folder containing your music (MP3Gain will automatically scan subfolders as well). MP3Gain makes no physical changes to your MP3 files, so there's no loss of quality. The app merely adds volume-level information to your songs' metadata.



MP3Gain lets you add only one folder at a time, but it automatically scans subfolders.

9 Analyze Your Tracks



MP3Gain's track analysis shows you how much gain is required to meet the designated normal volume setting.

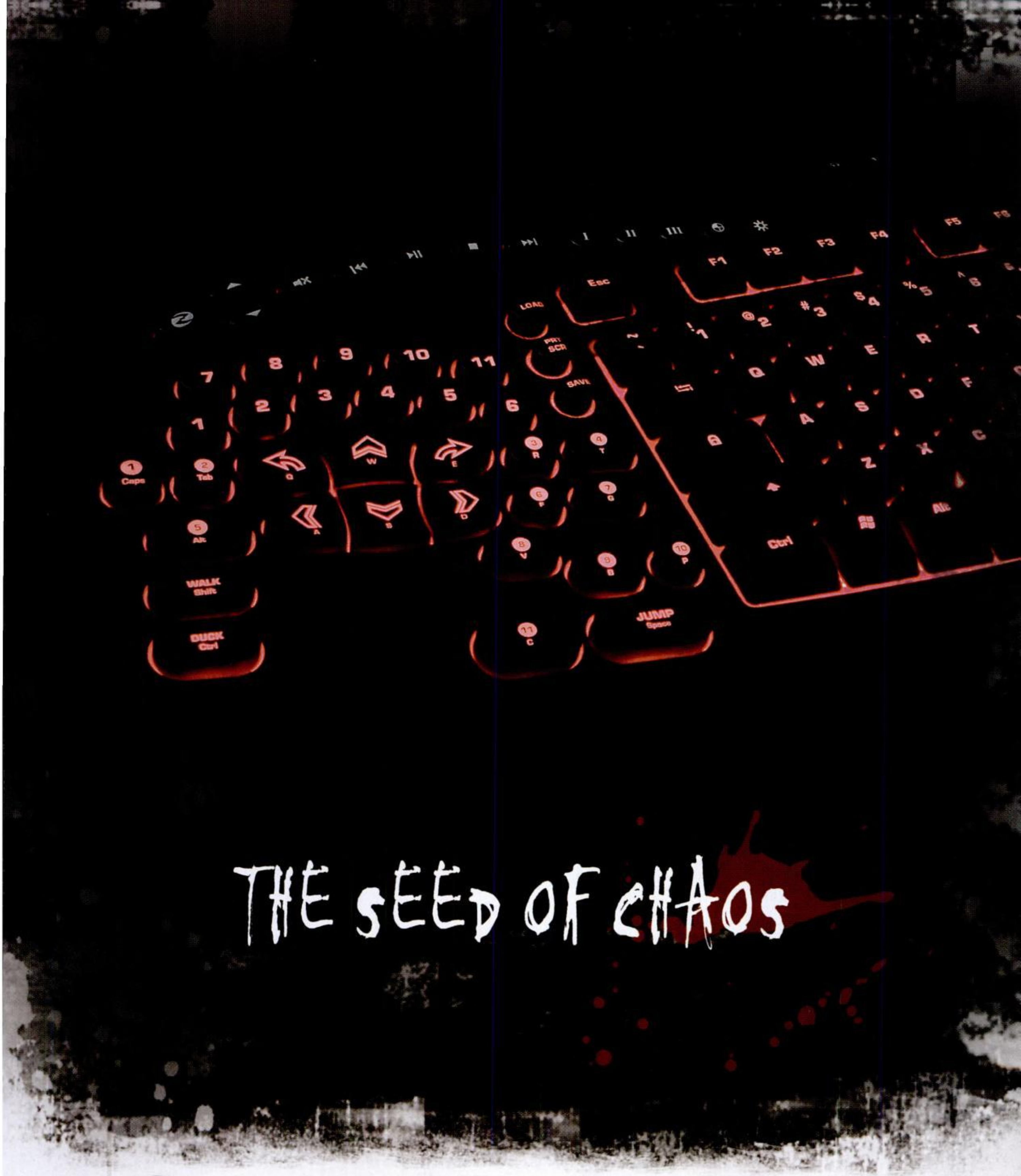
Now it's decision time. MP3Gain can analyze each individual track in your library or analyze by album. The latter method will keep the volume consistent across each album, but if you often shuffle-play your entire music library, don't be surprised if the volume still jumps or dips from one track to the next. This is largely a matter of personal preference, but we think there's little downside to opting for the track-analysis method. You can always reverse the process and switch methods later on.

By default, MP3Gain strives for a volume level of 89dB, but you can change this value if you like in the Target "Normal" Volume box provided. After that, click the Track Analysis button and then be prepared to wait while the program analyzes your selected folders. This can take quite a while, depending on the size of your collection.

10 Level Your Tracks

Once MP3Gain completes the analysis, you can review the results (the help file provides detailed descriptions to help you understand the results) or simply start the leveling procedure by clicking Track Gain. This will take even longer than the analysis, so be prepared to wait a while.

When you're done, fire up MediaMonkey and test your tracks. They may not have perfectly consistent volume, but they should more even. If they're too soft or too loud, you can always go back to MP3Gain and raise or lower the Target "Normal" Volume a few decibels. MPC



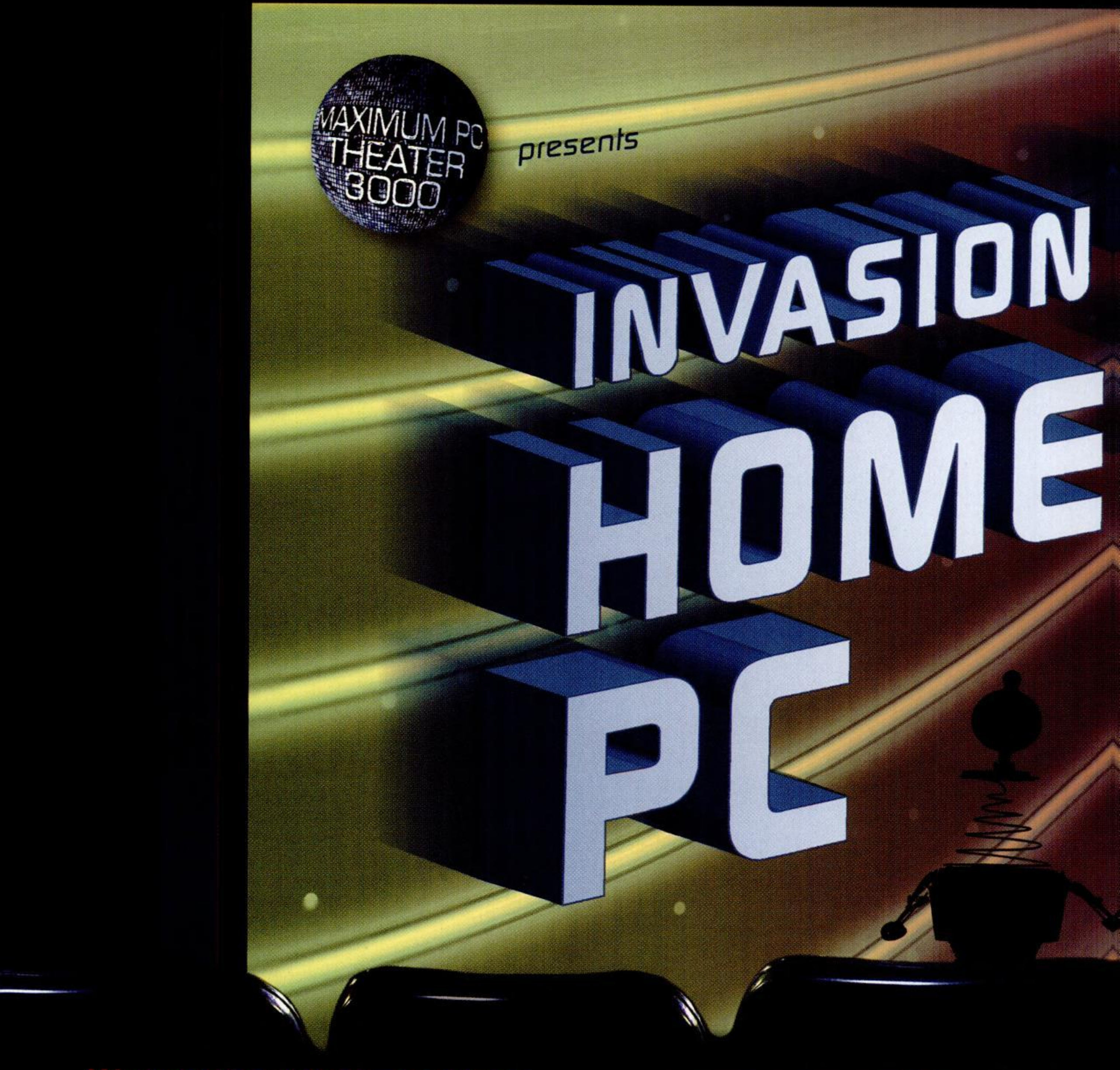
MERC
STEALTH
ILLUMINATED GAMING KEYBOARD

WWW.IDEAZON.COM/MERCSTEALTH

DOMINATE
IDEAZON
PRECISION GAMING TOOLS

Copyright © Ideazon, Inc. 2007. All rights reserved. Ideazon, Zboard and all other product sub-brands are owned and registered by Ideazon, Inc.
All other trademarks referred to are the property of their respective owners. US and other patent pending.

Copyrighted material



INVASION HOME PC

We test the latest machines from three leading media center PC manufacturers to see if any can challenge the mighty TiVo

BY MICHAEL BROWN AND WILL SMITH

PCs have been trying to infiltrate the living room for years, but despite Microsoft's best Windows Media Center efforts, we've always concluded that the computer serves us best on the desktop, not in our entertainment center.

And yet the concept of a home-theater PC (HTPC) remains intriguing. The DVR, after all—TiVo included—is really just a dumb PC with a too-small hard drive. A real computer would not only give us more storage and more choices concerning what we could do with the content we're paying for, but also eliminate the subscription and equipment-rental fees TiVo and the cable companies bend us over for each month.

On the other hand, while streaming music and video from the desktop to the A/V setup in the living room is a piece of

OF THE
THEATER

cake, it's another matter entirely to get video from your cable or satellite set-top box into your computer. You couldn't get scrambled content into previous-generation HTPCs, which meant you couldn't use your PC to time-shift HBO, Showtime, and other subscription programming.

What's more, you couldn't get the full range of digital cable—or *any* satellite—programming into your PC unless you rigged up a complicated system of IR emitters and receivers. And then you *still* had to have that blasted set-top box. Using an over-the-air tuner required an unsightly antenna and limited you to local channels—if you could tune in anything at all. Talk about a pain in the rump. It's just been so much easier to rely on TiVo or any other DVR.

The recent introduction of two closely intertwined products promises to resolve our dilemma: Microsoft's Vista and ATI's OCUR CableCard reader. We recently invited three leading HTPC manufacturers—S1 Digital, Velocity Micro, and VoodooPC—to send us their best rigs to see if they could deliver on that promise. As is our practice, we described the application we had in mind—a machine that would fit in our entertainment center and serve as the hub for a whole-house media setup—but didn't specify which components had to be in the system. We also told them gaming wasn't a priority, because we had other machines for that. Will any of these machines finally kill the dedicated set-top box? Or will this movie end up a cliffhanger?

BUYERS GUIDE

If you're buying someone else's idea of the perfect home-theater PC, make sure it's built with the same components and features *you* would choose

CPU

Playing movies and music are core tasks for any home-theater PC, but the machine will also be streaming media to other parts of the house; ripping, encoding, and burning audio and video; and much more. You'll want a moderately fast dual-core proc at a minimum.

FORMFACTOR

A tower is not a good formfactor for a home-theater PC: It won't blend in and it probably won't fit in your entertainment center. An aluminum case will dissipate heat better than steel.

HARD DRIVE

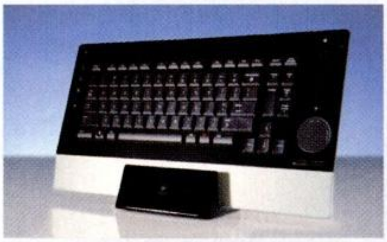
A $600 TiVo Series 3 has a 250GB hard drive, which renders it capable of recording about 30 hours of HD content. Consider yourself lucky if the DVR your cable company provides is outfitted with half that storage capacity. Any HTPC worthy of the name should have at least a terabyte of storage, but remember that some of that space will be consumed by the OS and other software you install. More storage is always better.

MEMORY

Demand at least 2GB of name-brand DDR2 800. More memory doesn't provide any benefit, but less will make your rig run slowly with Vista.

MOUSE & KEYBOARD

They should be wireless, obviously, but radio-based Bluetooth is a better option than infrared because it eliminates any line-of-sight requirement. A keyboard with an integrated mouse is handy, too, but there are times when a stand-alone wireless mouse is easier to use.



The Logitech DiNovo Edge ($200, www.logitech.com) is a fine HTCP keyboard.

OPTICAL DRIVE

Although we're not big fans of either format right now, a Blu-ray or HD DVD drive is the best way to get Hollywood movies in HD. A hybrid drive won't box you into a single format, but you'll pay dearly for the privilege. A burner is supremely helpful for archiving the terabytes of data you'll accumulate.

SOUND

A 5.1-channel audio system is the minimum, but 7.1 is much preferred. The PC should have optical and/or coaxial digital-audio outputs for connecting to an A/V receiver.

TV TUNER CARD

Assuming the kinks with ATI's OCUR technology get resolved (see sidebar below), two of these cards will be a must. The next step down is dual QAM tuners that receive unscrambled digital cable channels. If you're only interested in receiving digital TV over the airwaves, two ATSC tuners will suffice. If you're just connecting to a set-top box, you'll need a tuner with A/V capture.

VENTILATION

An HTPC should be seen, not heard: No one wants to hear the whir of cooling fans during quiet passages in movies or while listening to music. Any fans that *are* present should be whisper quiet.

VIDEOCARD

It's OK to forgo a screaming-fast videocard to sidestep heat and ventilation problems, but make sure it's HDCP compatible; otherwise, you won't be able to watch Blu-ray or HD DVD movies.

THE CABLECARD QUANDARY

ATI's solution for receiving digital cable on an HTPC presents consumers with some vexing problems

ATI's OCUR (OpenCable Unidirectional Receiver), coupled with a CableCard provided by your local cable company, *should* allow you to plug your PC into digital cable service. But if you thought Vista's launch was a mess, CableCard's is a disaster.

For starters, OCUR is available *only* in OEM PCs. As the story goes, Microsoft had to promise the movie moguls an unbroken—and supposedly unbreakable—chain of DRM so that PC pirates couldn't plunder Hollywood's treasure chest. This leads to our second catch: OCUR requires Vista. The third catch: If you want on-demand or pay-per-view services, you'll still have to use a set-top box. Lastly, OCUR works with cable TV *only* (not satellite).

In our experience, however, one problem dwarfed all the others: Internal OCUR cards were not ready for prime time as we went to press. We arranged for a Comcast service technician (through the company's public-relations department) to configure the OCUR tuners in our Velocity Micro and Voodoo machines. After wasting eight hours over two days with the tech trying to connect to Comcast's service—with live telephone assistance from three different Microsoft product managers, no less—we canceled the installation.

Since the tech couldn't activate *any* of the four CableCards in our Velocity and Voodoo systems, we suspect the problem lies with Comcast, ATI, and/or Microsoft. But we won't delve any deeper into this mess in these pages because we hope the problem will be resolved by the time you read this. You can, however, find the entire entertaining tale at **www.maximumpc.com/articles/ocur.**

According to an FCC mandate, cable TV operators must allow their customers to access digital cable using third-party tuners and recording devices outfitted with CableCard technology.

PLUG IN THE POWER OF PNY™
FOR THE ULTIMATE GAMING EXPERIENCE...

XLR8™ Performance Edition

NVIDIA
SLI™
READY
PNY
XLR8

XLR8™ Performance Edition Graphics Cards and Memory were designed for hard core gamers who demand more from their gaming rig. Offering game-shredding performance and über-fast frame rates, the combination of these products takes gaming to the extreme.

HARDWARE OF CHOICE
TEAM3D
DESIRE. DISCIPLINE. DEDICATION.
PC GAMING WORLD CHAMPIONS

The competition won't stand a chance!

PNY TECHNOLOGIES®

For more information and warranty details, please visit: www.pny.com/XLR8

The PNY logo is a registered trademark of PNY Technologies, Inc. All other trademarks are the property of their respective owners. Copyright © 2007 PNY Technologies, Inc. All rights reserved.

S1 DIGITAL MEDIA CENTER FX EDITION

Hey, is this thing on?

S1 Digital's Media Center FX Edition looks like an audiophile-level amplifier, so it will blend in well with any entertainment center.

S1 Digital's HTPC isn't as powerful as the PCs Velocity Micro and Voodoo whipped up, but the company took our requirements to heart more than either of its competitors. We said we wanted a machine that would fit in our entertainment center and serve as the hub for a whole-house media setup. The Media Center FX Edition certainly looks like it belongs in a home-theater rack, and it's as silent as a tomb.

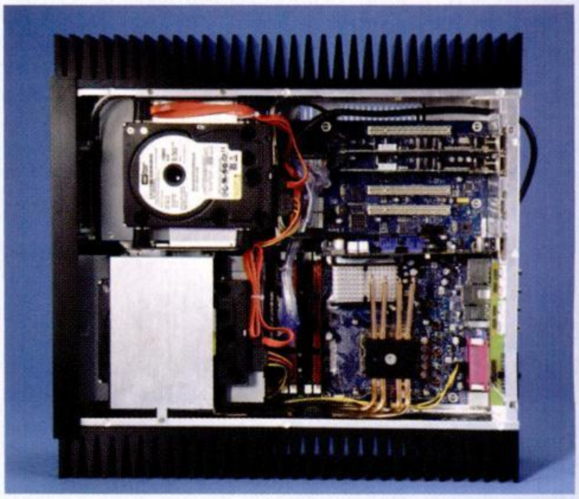
This rig's CPU, chipset, videocard, and videocard memory are all passively cooled, with the custom-made enclosure serving as a massive heatsink. Heat pipes mounted to the CPU and videocard wick heat to the sides of the massive case (the unit weighs more than 45 pounds), which is then dissipated over 64 1.5-inch-deep aluminum fins. There are three 3.5-inch round vents on top of the case, with a very quiet 9cm fan mounted in the vent centered over the CPU. The only other fan in the entire system is inside the 430-watt Antec TruePower Trio PSU (which exhausts through the bottom of the enclosure). Measuring just six inches high, this unit cuts an attractively low profile. And at 17.6 inches deep, it should be easier to fit in a standard cabinet than previous S1 Digital systems we've reviewed.

As you've probably already guessed—passive cooling and all—the Media Center FX isn't monstrously fast. S1 selected Intel's P965 motherboard, which has only one PCI Express x16 slot, and outfitted its LGA-775 socket with a 2.4GHz Core 2 Duo (E6600). Considering S1's penchant for passive cooling, this rig's Nvidia 8600 GT videocard seems appropriate. The 8600 GT isn't a barn burner when it comes to gaming, but it does support DirectX 10; more importantly, it has Nvidia's second-generation PureVideo HD engine, which offers 10-bit color and is capable of offloading all video-decode chores from the host CPU. Remember, we told each vendor that gaming isn't a concern with these rigs.

Recording TV programming, on the other hand, *is* a core mission, and S1 Digital didn't make the qualification cut to include the ATI OCUR tuner cards we needed to connect to our digital cable system. The company assures us it will be offering such an option by the time you read this, but we can only report on what we have in our hands. Based on our initial experience with OCUR, however, the company should be relieved (see "The CableCard Quandary" on page 38 for details). S1's system was outfitted with two AVerMedia AVerTV Combo PCIe cards, each of which has one NTSC tuner and one QAM-compatible ATSC tuner (the latter is capable of recording unencrypted content from digital cable systems).

There's a read-only Toshiba HD DVD drive discretely hidden inside the case, but we're disappointed by the absence of front-mounted USB and FireWire ports and an integrated media-card reader, which leaves you without any way to present impromptu digital slide shows. Aside from that, we absolutely dig this ultraquiet machine.

$5,500, www.s1digital.com



A combination of heat pipes and a massive heatsink—consisting of the entire aluminum chassis—provides nearly all this machine's cooling needs.

THE MOTHER OF ALL
HOOKUPS.

As acronyms go, USB means more than most. Because this wildly popular technology is how the world holds hands. Or rather, how computers and their supporting peripherals carry on meaningful relationships.

We're talking connectivity, of course. And a level of consumer acceptance that leaves other technologies feeling envious. With data throughput speeds up to 480 Mbps. Security that inspires confidence. Sync-and-go simplicity. And the sort of reliability that sometimes gets taken for granted. Think about it: Has there ever been a more user-friendly technology?

Now think about how the USB suite of technologies—Certified Hi-Speed USB, Hi-Speed USB On-The-Go or Wireless USB—makes it possible for various technologies to get along. In the world of computers and peripherals and mobile devices, it's love at first sight.

HI-SPEED CERTIFIED USB ®

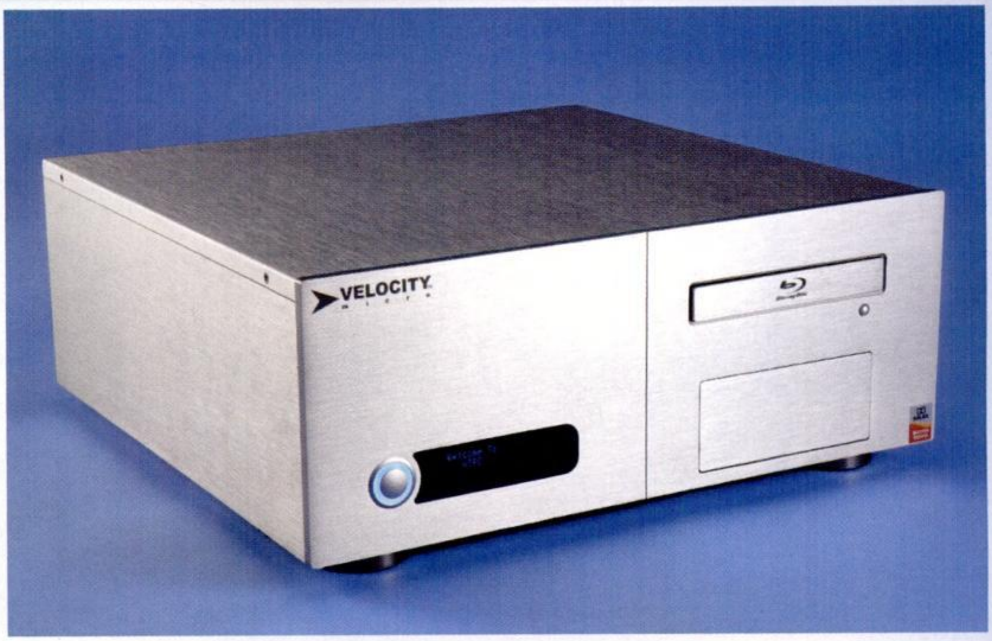
HI-SPEED CERTIFIED USB ™ On-The-Go

WIRELESS CERTIFIED USB ™

Information brought to you by the USB Implementers Forum
Visit www.usb.org

VELOCITY MICRO CINEMAGIX GRAND THEATER

A near-perfect balance of beauty and beast



The Grand Theater's front-panel LED displays not only data from audio and video discs but also the channel number and title of the TV program you're tuned to.

Velocity Micro seems determined to keep us addicted to muscle PCs. We told the company, "We can give up our compulsion for sheer horsepower in exchange for an ultraquiet machine for our entertainment center." So what did we receive? A quad-core monster that left us saying, "Well, it's really not *that* loud."

But when it came to getting the CineMagix Grand Theater's dual internal OCUR cards to work, Grand Theater seemed a fitting description (see "The CableCard Quandary" on page 38 for details). While S1 Digital took us at our word and stepped down to less-powerful—and much cooler—components to enable silent running, and Voodoo split the difference by using a lower-end videocard but Intel's top dual-core CPU, Velocity went balls out and built a machine using Intel's *best* CPU (the quad-core Core 2 Extreme QX6800) and Nvidia's third most powerful GPU (the GeForce 8800 GTS with a 640MB frame buffer).

Unlike the Nvidia 8600 GT in S1 Digital's machine, the 8800 GTS in the CineMagix doesn't have Nvidia's best video-decoding engine, and so it relies on the CPU for much of the HD video decoding work. But who cares when you have a quad-core CPU to work with? And in spite of all that electronic might (and the 700-watt Seasonic power supply fueling it), Velocity's CineMagix was quieter than the Voodoo Aria. Compared to the S1 Digital Media Center FX, on the other hand, Velocity's entry sounded like a banshee, but this is one she-devil we can live with.

In terms of storage, Voodoo's Raptor/Barracuda combo is faster, but Velocity's solution is more sensible: three Hitachi terabyte drives in RAID 5. Although the usable storage capacity equivalent of one drive is consumed by parity in this type of array, you gain a measure of data recoverability if one drive fails—not to mention 1.8 terabytes of storage. Not enough for you? There's room inside the case for one more terabyte drive. You can use the Lite-On 2x Blu-ray burner to create archival backups as well as watch movies, but Velocity's drive choice locks you into Blu-ray. We much prefer Voodoo's hybrid drive, which gives you both Blu-ray *and* HD DVD.

Velocity Micro has something for every expansion slot—including an Nvidia videocard—in Intel's CrossFire-compatible Bad Axe II motherboard.

If recording two programs at once isn't enough to slake your thirst for TV programming, Velocity includes a third TV tuner in the box (an ATI TV Wonder 650). But why bother? In a Media Center environment, this third tuner is useless, since it won't receive the full array of channels the OCUR tuners get—we'd happily trade this bit of fluff for a dedicated soundcard. Even an audio riser board would be better than leaving audio down on the mobo. The Netgear 802.11g Wi-Fi adapter, on the other hand, is welcome to stay.

OK, we'll admit it: We succumbed to Velocity's "Come on, you know you want it" approach. Assuming OCUR's teething problems are resolved by the time this issue hits newsstands, the Grand Theater will be not only a fantastic home-theater PC but also a rig that's adept at gaming.

$6,500, www.velocitymicro.com

VOODOO ARIA

Yeah, it's got that, too. But it costs how much?

The Aria is particularly useful for home theaters that use video projectors instead of TVs: You can perform quick tasks using the front-mounted LCD and conserve your projector bulb.

An ATI Radeon HD 2600 videocard sitting in an Nvidia-designed SLI motherboard wasn't quite what we expected to find when we cracked the lid on the Voodoo Aria. But the two make a surprisingly good tag team.

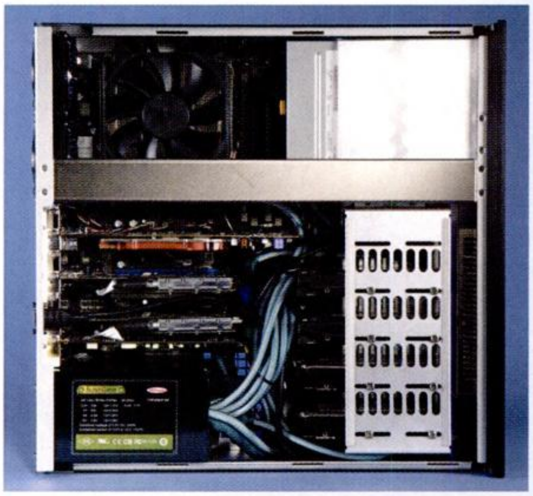
Voodoo's HTPC Quiet Aluminum Chassis echoes the Ahanix MCD701 we chose for our own build-it project in the October 2006 issue, complete with a front-mounted LCD. The Aria is stuffed with plenty of other juicy components, too; then again, it's also the most expensive of the three machines we looked at—by a wide margin. Examined from a price/performance ratio, this Aria sounds just a little off key.

Large 11.5cm case fans on each side, accompanied by two 7.5cm case fans on the back, contribute to a noise signature that's louder than the Velocity's and significantly louder than the virtually silent S1 Digital. And why use side-mounted fans to cool a machine that's destined to be shoved into an entertainment center? Most of these cabinets are designed to accommodate gear that's 19 inches wide; it seems like the 16.5-inch-wide Aria would suffocate.

Voodoo's entry came with two ATI OCUR CableCard tuners (one of which was sitting in the motherboard's second PCI-E x16 slot), but our Comcast service tech couldn't get either of them to work (see "The CableCard Quandary" on page 38 for the full scoop). The Radeon HD 2600 offers just 120 stream processing units, compared to the Radeon HD 2900 XT's 320, so this isn't a great DX10 gaming card, but we're more interested in its video capabilities anyway. From that standpoint, it's excellent in terms of both image quality and the ability to offload work from the host CPU.

Voodoo was unique in offering not only a dual-format HD-video drive (Blu-ray read/write plus HD DVD read) but also a multiformat CD/DVD burner (with LightScribe technology, no less). The spring-loaded, flip-down doors covering the two drive trays are the epitome of slick. The hard-drive configuration is equally over the top: two 74GB Raptors in RAID 0 for the operating system, plus two 750GB Seagates in RAID 0 for data storage. We adore the capacity—what's not to like about having 1.3 terabytes of storage at your disposal?—but the failure of either drive will result in unrecoverable data loss on both.

We're always in favor of getting audio off the motherboard, especially in a PC intended to serve as the heart of our entertainment center, so we have to applaud Voodoo for including Auzentech's X-Meridian 7.1 soundcard. Audio quality is the key benefit here: Voodoo's machine is equipped with an Intel Core 2 Extreme X6800 running at 2.93GHz, so it has plenty of CPU horsepower.



Voodoo loaded this machine like it was Noah's ark: two cores, two tuners, two Raptors, two Barracudas, two optical drives....

But we keep coming back to that price-performance ratio. The Aria is priced $850 higher than the Velocity Micro rig, which is equipped with an even more powerful quad-core QX6800 processor, and Voodoo's box is $1,850 more expensive than S1 Digital's, which is virtually silent. We just don't see the value. **$7,350, www.voodoopc.com** www.zalman.co.kr / www.zalmanusa.com

USB SURROUND SOUND HEADPHONES

ZM-RS6F USB

- USB Based 6-Speaker Surround Sound Headphones
- Ideal for Surround Sound with Notebooks for DVD Movies and Games
- Real Surround Field Comparable to a Complete Multi-Channel Speaker System
- In-Line 5.1 Channel USB Soundcard
- Programmable Spatial Processing, Graphic EQ and More

EXTREME DUAL STEREO HEADPHONES

ZM-DS4F

- 2Way Stereo Headphones with 4 Diaphragms
- Dedicated Low & High Range Diaphragms for Each Channel
- 28mm Tweeters for Ultra Clear Highs
- 40mm PEI Woofers for Full Powered Bass
- Compact 3-Point Folding Headband for Convenient Mobility

Available at : newegg www.newegg.com ZipZoomfly www.zipzoomfly.com Sharka Corporation www.sharkacomputers.com TigerDirect.com www.tigerdirect.com

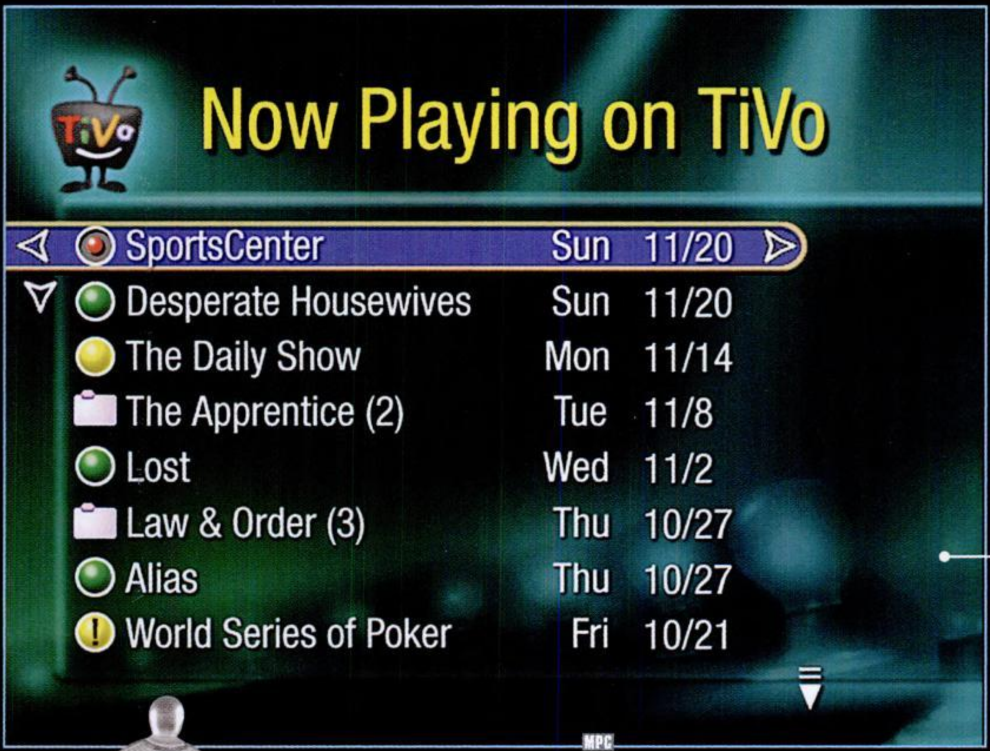
ZALMAN
COOL INNOVATIONS

head2head

TiVo Series 3 vs. Windows Media Center

Now that you've seen the hardware behind these HTPCs, let's take a look at the software that powers them, Windows Media Center, and compare it to the leading set-top box software, TiVo. As you may know, Media Center is included with Windows Vista Ultimate and Windows Vista Home Premium, while TiVo only comes with custom consumer electronics (and, in theory, some cable providers' DVRs, eventually).

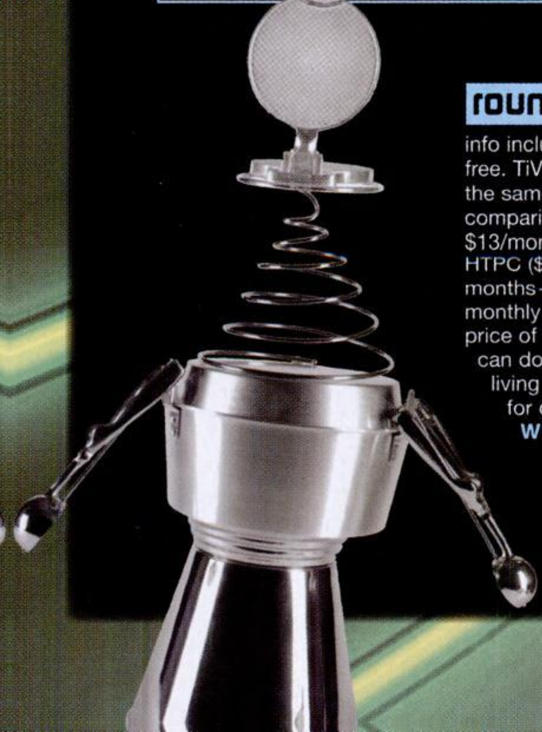
Follow along as we break down the major points in the PVR battle.



Now Playing on TiVo

SportsCenter	Sun	11/20
Desperate Housewives	Sun	11/20
The Daily Show	Mon	11/14
The Apprentice (2)	Tue	11/8
Lost	Wed	11/2
Law & Order (3)	Thu	10/27
Alias	Thu	10/27
World Series of Poker	Fri	10/21

TIVO
www.tivo.com



round 1 PRICE

The TV scheduling info included with Media Center is free. TiVo charges $13 a month for the same data. Of course, if we're comparing a Series 3 TiVo ($600 + $13/month) to the Velocity Micro HTPC ($6,500), it will take about 454 months—that's 38 years—for TiVo's monthly charge to equal the high price of the HTPC. Sure, the HTPC can do other stuff, but if it's in your living room, will you be using it for other tasks?

WINNER: TIVO

round 2 PVR FEATURES

Both competitors in this battle have compelling features. TiVo is the gold standard for PVR software, with lightning-fast response times, intuitive recording controls, remote scheduling, automatic suggestions based on your viewing habits, and an interface so simple that your parents—no, your grandparents—can use it.

On the other hand, Media Center handles the basics really well. Recording specific shows works great, and we love the dedicated interfaces that make discovering movies and sporting events simple, but even on a high-end rig, we wouldn't call Media Center snappy. And Media Center lacks many of the features that make TiVo spectacular for TV viewing, like easy recording of an entire season of a show, or recording by keyword, actor name, or subject matter.

WINNER: TIVO

head2head

round 3 VIDEO/AUDIO QUALITY

Early TiVo boxes did a fairly crappy job of encoding video, but newer Series 2 and Series 3 models work much better, with support for Dolby Digital 5.1 and high-definition video (in the case of the Series 3). The video quality you get from a Media Center depends largely on the tuners the manufacturers use. We were very interested to see how the OCUR CableCard tuners compared to similar direct digital high-definition tuners in the Series 3 TiVo. Unfortunately, we couldn't get the CableCard tuners to work, so this round goes to TiVo by default.

WINNER: TIVO

round 4 VERSATILITY

TiVo has added tons of functionality to its closed boxes, including casual games, support for Amazon's downloadable Unbox movies, podcast support, video streaming from the web, and streaming of photos, music, and even home movies from a home server.

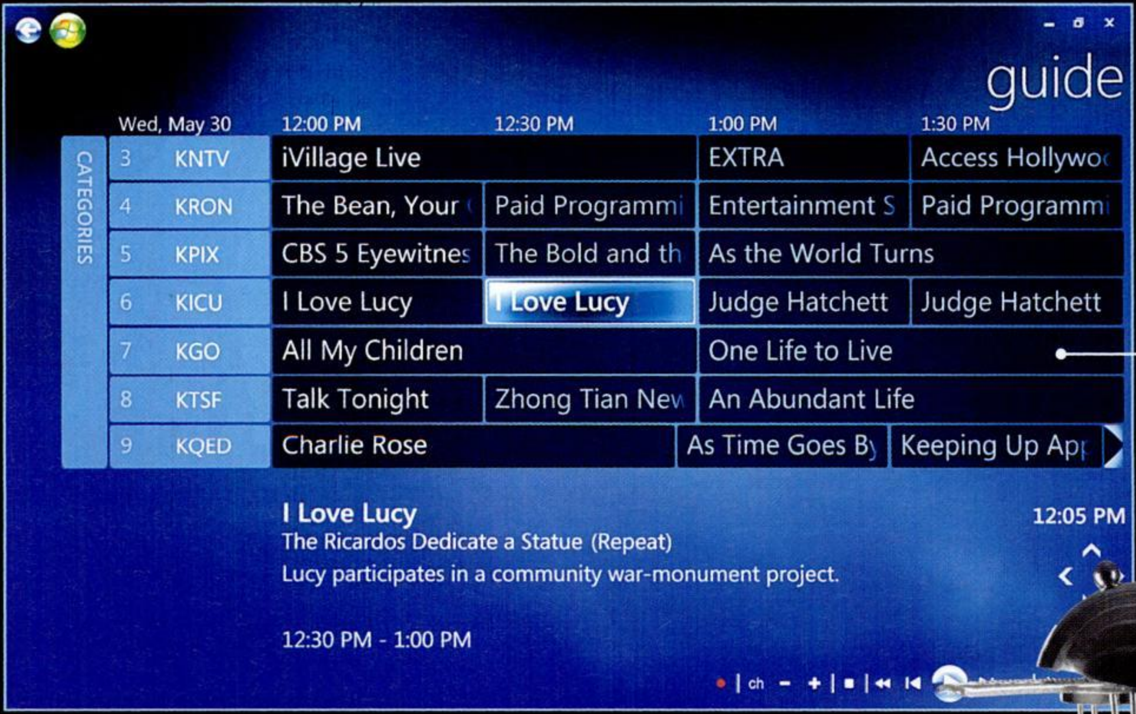
On the other hand, with Media Center, you have a fully featured PC hooked up to a high-resolution screen in your living room. That gives you access to the web, every game that works on Windows, and anything else you can do on a PC. That makes this category a clear win for the PC.

WINNER: MEDIA CENTER

round 5 DIY-NESS

At this time last year, Media Center would have won this round handily. Back then, you were able to build a fully featured HTPC with Windows Media Center for a fraction of the price you'd pay for a retail machine. But with CableCard support available only to large OEMs who certify their machines (and not to home builders), the only way to get an HD-enabled Media Center is to buy one off the shelf. Of course, you still can't build a TiVo of your own either.

WINNER: NEITHER



Wed, May 30		12:00 PM	12:30 PM	1:00 PM	1:30 PM
3	KNTV	iVillage Live		EXTRA	Access Hollywo
4	KRON	The Bean, Your	Paid Programmi	Entertainment S	Paid Programmi
5	KPIX	CBS 5 Eyewitnes	The Bold and th	As the World Turns	
6	KICU	I Love Lucy	I Love Lucy	Judge Hatchett	Judge Hatchett
7	KGO	All My Children		One Life to Live	
8	KTSF	Talk Tonight	Zhong Tian New	An Abundant Life	
9	KQED	Charlie Rose		As Time Goes B	Keeping Up App

I Love Lucy
The Ricardos Dedicate a Statue (Repeat)
Lucy participates in a community war-monument project.

12:30 PM - 1:00 PM

12:05 PM

WINDOWS MEDIA CENTER
www.microsoft.com

And the Winner Is...

If you're paying for your hardware (and aren't we all?), it's **tough to beat TiVo**. Given TiVo's high-definition PVR functionality, we can't in good conscience recommended the much more expensive Media Center over a dedicated box. For what these OCUR-equipped PCs cost, we could buy a top-of-the-line TiVo (and a terabyte hard drive to maximize its capacity) with plenty of cash left over to build a kick-ass gaming rig.

Unfortunately, by giving access to OCUR technology to OEMs only, the content industry has destroyed the market for high-definition-friendly, home-brew HTPCs, whether you use Windows Media Center, MythTV, BeyondTV, or one of the alternatives. If we're ever able to build our own OCUR boxes, we'll have to revisit this debate, but until then, we're going to recommend dedicated boxes like TiVo. MPC

VANTEC

NexStar MX

DUAL 3.5" SATA HDD ENCLOSURE

POWER
HDD 1
HDD 2
VANTEC
SERIAL ATA
NexStar MX

MORE to STORE

MUSIC GAME PHOTO MOVIE

STORE UP TO 2 TERABYTES

Vantec NexStar MX Dual Bay External Hard Drive Enclosure is a quick and simple way to expand storage capacity to your computer. It comes without the hassle of diving inside the PC and messing with all the wires, cables and connections. The sturdy drive cage protects your hard drive while the stylish aluminum case effectively draws away the heat; the front vents and rear fan keep your hard drive(s) cool and improve performance. Add two independent SATA I/II hard drives or configure into a single JBOD drive for up to 2 terabytes of drive space. Easy-to-use Arcsoft Totalmedia Backup™ software allows you to archive precious family photos, music, videos, and games with three easy clicks. The Vantec NexStar MX Dual is a high performance, capacity, and durable storage solution and lets your store your personal data in an enclosure with style!

CERTIFIED HI-SPEED USB   SERIAL ATA   COOLING   PLUG N' PLAY   ArcSoft TotalMedia Backup™

- Supports 2 SATA I/II Hard Drives Up to 2.0 TB of Storage
- USB 2.0 External Interface Allows You to Transfer Data Up to 480 Mbps
- Front Ventilation and Rear Fan for Better Air Circulation and Cooling
- Stylish Aluminum Case to Draw Away the Heat
- Easily Add Up to Two Independent Hard Drives
- Supports JBOD Configuration; Turn Two Hard Drives Into One
- Simple Plug & Play Connection; Does Not Require Drivers
- Arcsoft Totalmedia Backup™: Archive Photos, Music, Video and Data With Three Easy Clicks

newegg.com   TigerDirect.com   Fry's Electronics   MICRO CENTER The Ultimate Computer Store   PCMall   mwave.com   CYBERGUYS.COM Nationwide Supplier of Computer Products   eCOST.com   ZipZoomfly.com

for more information on where to buy please go to
http://www.vantecusa.com/wheretobuy.html

Copyright © 2007 Vantec Thermal Technologies. All Rights Reserved. All Registered Trademarks Belong To Their Respective Companies.

Vantec Thermal Technology, Inc.
43951 Boscell Road. Fremont, CA 94538
Tel. 510.668.0368 Fax. 510.668.0367

COMEDY CENTRAL
joost
BBC NEWS
abc NEWS
last.fm
DISCOVERY CHANNEL
finetune

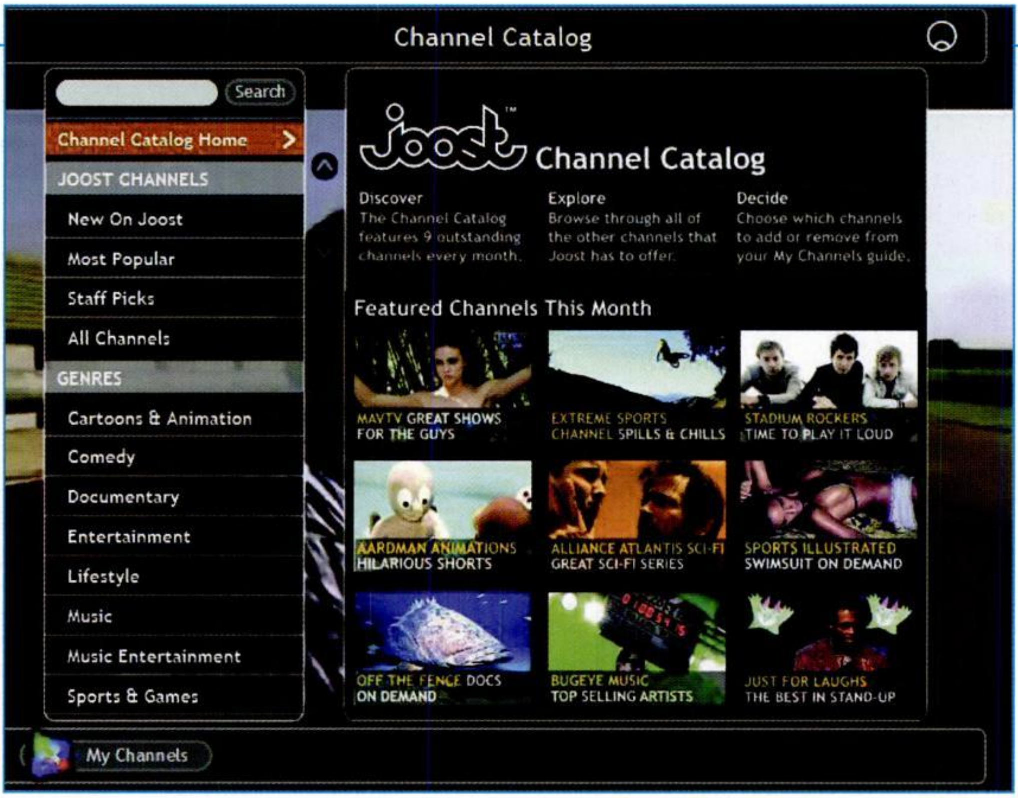
Watch 'Net TV—**for Free!**

Turn your PC web browser into a TV

Let's be honest here: turning on a TV or radio can be a hit-or-miss affair. At best, it can send you into a pleasant slumber after a hard day's work. At worst, it can turn into a soul-destroying experience that'll make you lament the state of the world. The programming hasn't been designed for you—it's been put together to appeal to as many people as possible. Which might mean it doesn't appeal that much to anyone. When there's a program that you're actually eager to watch, isn't it annoying having to sit down in front of the box at the prescribed time to see it?

Things are a lot different on the web, where TV and radio programs are designed especially for you and they're delivered on your terms, when you choose. Over the next few pages we'll show you the sites that analyze your musical tastes and build customized radio stations, just for you. If sticking to a television timetable isn't ideal, you're also in luck: we explain how you can watch your programs at whatever time is convenient.

BY TANYA **COMBRINCK**


Channel Catalog
Search
Channel Catalog Home
JOOST CHANNELS
New On Joost
Most Popular
Staff Picks
All Channels
GENRES
Cartoons & Animation
Comedy
Documentary
Entertainment
Lifestyle
Music
Music Entertainment
Sports & Games
My Channels
joost Channel Catalog
Featured Channels This Month
MAVTV GREAT SHOWS FOR THE GUYS
EXTREME SPORTS CHANNEL SPILLS & CHILLS
STADIUM ROCKERS TIME TO PLAY IT LOUD
AARDMAN ANIMATIONS HILARIOUS SHORTS
ALLIANCE ATLANTIS SCI-FI GREAT SCI-FI SERIES
SPORTS ILLUSTRATED SWIMSUIT ON DEMAND
OFF THE FENCE DOCS ON DEMAND
BUGEYE MUSIC TOP SELLING ARTISTS
JUST FOR LAUGHS THE BEST IN STAND-UP

Discover
The Channel Catalog features 9 outstanding channels every month.

Explore
Browse through all of the other channels that Joost has to offer.

Decide
Choose which channels to add or remove from your My Channels guide.

1 Receive a Joost Invite

Joost is a free Internet TV service created by the people who invented Skype. It's still in the beta stage of development, and at the moment you need an invite to set up your account. Fortunately, these are easy to come by. Just do a Google search for "Joost invite"—plenty of sites are giving them away. Everyone with a Joost account can send invites, so you can get one from someone you know, too. Once you've received your invite, follow the link to install the software and get Joost up and running on your system.

2 Getting the Joost Basics

Joost streams TV content to your PC via an attractive interface that's remarkably similar to Apple's FrontRow. Find content on Joost using the Channel Catalog or the search field. You can build a list of your favorite channels using My Channels on the left of the screen. The content available on Joost will increase as the project develops, but for now there's a reasonable selection of channels showing music, lifestyle, documentary, and comedy programming.

The main control center for Joost is accessible from the bottom of the screen. Place your mouse pointer in this area to bring up buttons to control the video that's playing, search for other content, and access the Channel Catalog and Program Listings. You'll also find a button to toggle between full-screen and window mode. Use the circle in the top right of the window to hide the controls and other paraphernalia.

3 Using Joost Widgets

Joost contains a number of useful widgets such as a clock, a news ticker, and an instant-messaging window for chatting with other Joost-ers. Click My Joost on the right of the screen and then open the Widgets Menu. You should also use this menu if you'd like to send an invite to someone.

The Advanced Settings contain two useful options. If you need to save bandwidth, you may want to uncheck the box to leave Joost in Standby mode when you're not using it. There's also an option to use a PIN number to prevent other people, such as children, from using Joost on your machine.

4 Don't Let Joost Take Over

The Standby button in Joost is much like that on a real TV, in that it turns off the picture but continues to consume resources. Joost will still use up your bandwidth to send video to other users unless you quit the program completely. Check your System tray to see if it's still active.

5 Tune in Last

Last.fm is a superb resource for discovering and listening to new music. U.S. media giant CBS Corporation purchased it earlier this year for $280 million, proving that there's serious interest in this innovative UK outfit. Go to www.last.fm and click Sign Up to make a profile.

Last.fm uses software installed on your PC to make a record of the songs that you play in your music player or iPod, which is called "scrobbling." These songs are added to your online music profile, which other people can see. This technique gradually builds up a picture of your music tastes, which helps Last.fm recommend music to you. You can also discover music by listening to radio stations. A personalized station is created for each person and each artist, and you can listen to all of them.

6 Get Scrobbling With Your iPod

To scrobble your iPod, click the link in the Downloads section of the website for iSproggler and follow the instructions. Unfortunately, Last.fm doesn't support other players at this time.

7 Find Joost-ers With Similar Tastes

One way to discover new music is to play a track by a favorite artist and use Last.fm to find other users who listen to that artist a lot. You can then investigate the other music those people like.

Click the Now Playing tab in the Last.fm software to see a description of the currently playing artist, a short list of similar artists, and a list of the Last.fm users who are "Top Listeners" of this artist. Click one of those people to bring up their profile in your browser.

8 Use Profiles to Find New Music

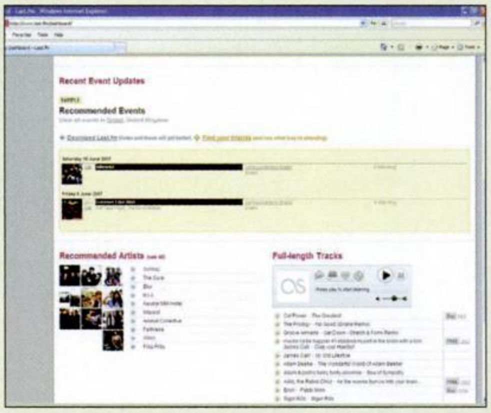
The Overview tab of another user's profile shows the person's Recently Listened Tracks, Top Tracks, and Top Artists. Listings with a Play icon adjacent to them can be played for a 30-second preview time, enabling you to try them out. It's handy, too, that you can access the other user's radio station—it'll play a selection of music tailored to their tastes, which may be similar to yours. It's also useful to browse the person's friends and the groups of which they're a member.

9 Master Tagging

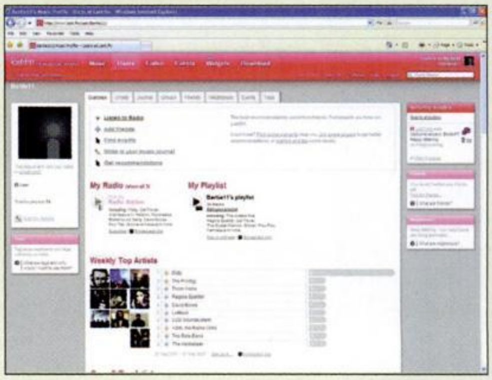
Tags are descriptive words attached to tracks and to artists. When you tag a track or artist, it/they're added to your profile. When you click one of your tags, everything you tagged with that word appears, so it can be a useful organizational tool.

Tags increase the usefulness of Last.fm because they're visible to everyone. So you can create a radio station of tracks with particular tags, or see what an artist might be like by looking at their tags. The more tags something receives, the bigger that tag appears, so you can see which items are most popular. Add tags by going to the page of an artist or track, or by using the Tag button inside the Last.fm software when a track is playing.

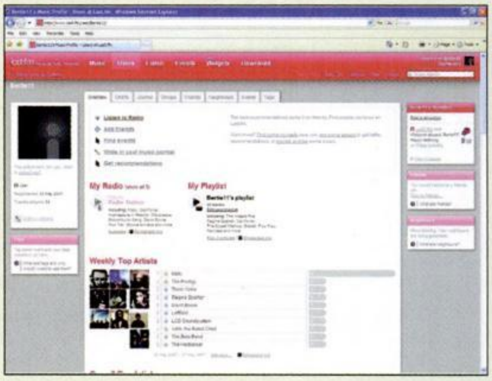
Navigating Last.fm



Your Recommendations Dashboard shows you events in your area that you might be interested in, as well as a link to all music events near you. Below that are artists similar to your favorites, plus some full-length tracks.



Access your profile page by clicking your username. This page shows your Radio Station, which plays tracks similar to those you listen to, and your Playlist, which you build by selecting tracks.



Use the search bar to look for an artist's page. There's some biographical info, a radio station that plays similar tracks, and links to similar artists. You can listen to a 30-second preview of many of the artists' tracks.

COMPUTER SHOPPER SHOPPERS' CHOICE 2006

WINNER 3 YEARS IN A ROW!
BEST PLACE TO BUY
- ONLINE
- SOFTWARE
- PERIPHERALS
- CORE COMPONENTS

newegg.com®
ONCE YOU KNOW, YOU NEWEGG.®

[Enter Promo Code MAXS1007 for a FREE T-SHIRT with these items]

The only thing we're guilty of... is outrageously FAST SHIPPING.

Speed Up Your Media Creation with Newegg.com

newegg.com presents Lanfest 2K7

THE ULTIMATE VIDEO GAMING FESTIVAL
3 Days And 3 Nights Of Non-stop Gaming :: Over $50,000 In Cash And Prizes
October 5th - 7th, 2007 · Ontario Convention Center, Ontario, California

powered by AMD

- 99% of orders ship within 1 business day
- "A" rating on ALL merchant ranking sites
- Over 725,000 product reviews from customers
- Over 50,000 customer testimonials

NO PAYMENTS FOR 6 MONTHS
with your *Newegg.com* Preferred Account*
See website for more information. Promotion ends 11/30/07

Seagate
$149.99
Seagate FreeAgent Desktop
500GB, 7200 RPM, USB 2.0 External Hard Drive, ST305004FDA1E1-RK

roxio
$79.99
Roxio Easy Media Creator 9
Suite, Burn CDs & DVDs, transfer files to iPod, PSP or other device

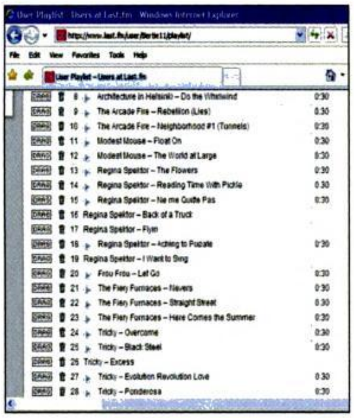
Canon
$799.99
Canon Rebel XTI 10.1 MP
w/EF-S 18-55mm f/3.5-5.6, 22.2 x 14.8mm CMOS, 2.5" 230K LCD

SONY
Sony VAIO AR Series VGN-AR550U 17.0" NoteBook
Intel Core 2 Duo T7100(1.80GHz), 17.0" Wide XGA+, 2GB, 240GB, NVIDIA GeForce 8400M GT
$2349.99

©2007 Newegg Inc. All rights reserved. Pricing and Availability: Prices good from 09/11/07 to 11/11/07 or while supplies last. Prices, availability and terms of offers may change without notice. Taxes and shipping charges, if applicable, are not shown. Newegg is not responsible for pricing or other errors and reserves the right to cancel orders arising from such errors. All items sold as retail unless otherwise noted. OEM products may be sold without packaging, documentation or other articles. *See Newegg.com website for more information on promotion end dates for the Newegg.com Preferred Account.

Copyrighted material

10 Last.fm Recommends...


User Playlist - Users at Last.fm - Windows Internet Explorer
http://www.last.fm/user/Berte11/playlist/
File Edit View Favorites Tools Help
User Playlist - Users at Last.fm

8 Architecture in Helsinki – Do the Whirlwind 0:30
9 The Arcade Fire – Rebellion (Lies) 0:30
10 The Arcade Fire – Neighborhood #1 (Tunnels) 0:30
11 Modest Mouse – Float On 0:30
12 Modest Mouse – The World at Large 0:30
13 Regina Spektor – The Flowers 0:30
14 Regina Spektor – Reading Time With Pickle 0:30
15 Regina Spektor – Ne me Quitte Pas 0:30
16 Regina Spektor – Back of a Truck
17 Regina Spektor – Flyin
18 Regina Spektor – Aching to Pupate 0:30
19 Regina Spektor – I Want to Sing
20 Frou Frou – Let Go 0:30
21 The Fiery Furnaces – Nevers 0:30
22 The Fiery Furnaces – Straight Street 0:30
23 The Fiery Furnaces – Here Comes the Summer 0:30
24 Tricky – Overcome 0:30
25 Tricky – Black Steel 0:30
26 Tricky – Excess
27 Tricky – Evolution Revolution Love 0:30
28 Tricky – Ponderosa 0:30

Last.fm makes artist, track, and event recommendations for you based on your music profile. You can access these from the Dashboard. Click your username to view your own profile page, which contains your Radio Station and your Playlist. When you hover over song listings, a small cassette symbol appears: use it to add a song to your Playlist. You can also add from a track's page using the link underneath the artist's picture.

11 Listen to Full-Length Tracks

When you search for a track or artist on Last.fm, you can typically listen to only a 30-second snippet. However, there are ways to listen to full-length tracks. One method is to check your Recommendations on your Dashboard—there's a selection of recommended tracks that'll play in full. Another way is to add songs to your Playlist. You need to have at least 15 tracks on there before it'll work, and tracks will play only in random order, but they will play in full.

Occasionally, Playlists won't play if you have too many tracks by one artist. And sometimes, due to licensing restrictions, your Playlist stops before all the tracks have been played. The best solution is to put as many tracks as possible on a Playlist.

12 View Sky Anytime

If you're a Sky customer, you can download sports, films, and entertainment programs to watch whenever you want—check out **http://anytime.sky.com**. You can also watch programs on your mobile phone if you have the right type of handset. Downloads come with DRM that restricts how long you can watch them.

13 Use Internet TV Aggregators

These sites pull together the thousands of TV stations on the internet and stream them for you. Channel Chooser (**www.channelchooser.com**) is a free TV portal with a good interface and lots of channels on all subjects. It also offers a videos section that aggregates clips from sites such as YouTube and Google Videos, as well as lesser-known video sites. **www.streamick.com**, **http://wwitv.com**, **http://freetube.us.tc**, and **www.lordoftv.com** are some of our favorite sites.

14 Play With Mog

Similar to Last.fm, Mog.com (**http://mog.com**) is another useful site for discovering new music. The site has an appealing design and it's more blog-focused than some of the others, which you might prefer as a means to explore music.

15 Finetune Your Music

If you get frustrated with the licensing restrictions on Last.fm's Playlists, then Finetune (**www.finetune.com**) is a good alternative. Once you've set up your account, click Create New Playlist. Search for an artist who you'd like in your Playlist and click the orange plus (+) button next to the tracks you want to add. Click "Add to new playlist." Now keep searching and adding.

You need 45 tracks on your Playlist, and you can add only three per artist. Once you have a few songs on there, you can click the "I'm lazy" button to get Finetune to populate the list with similar tracks, or you can fill it manually.

16 Visit Vidwiki

This useful site collects links to free streaming TV-show episodes and films. It's an excellent resource if you want to browse because it offers a big list of what's available and it's all presented in the familiar wiki format. You'll also find plenty of links to other resources that'll help you if you're searching for something specific. Get exploring at **www.vidwiki.org**.

17 Conventional Radio Online

Most of the big radio stations in America and other places are streamed over the internet. Go to a specific station's website or visit an aggregator such as **www.live-tv-radio.com**, which carries lists of stations organized by country.

18 Open Pandora

Pandora is a simple radio site that builds a radio station for you based on a track or artist name that you enter. When you create an account, you can store multiple radio stations for easy access the next time you visit. Find it at **www.pandora.com**.

19 Listen to Live365

Live365 (**www.live365.com**) is an internet radio network composed of thousands of stations that you can listen to for free. Click the Browse Genres tab to bring up an enormous list of categories that you can use to find stations that interest you.

20 Sit Back, Relax, Enjoy!

Now all you need to do is find a comfy chair—as you're going to be at your PC desk for a while—a cold drink and some free time. We've shown you how, now it's time to enjoy the web's multimedia fruits to their fullest potential. MPC

VELOCITY micro
VELOCITY micro

THE POWER TO FASCINATE

Luxury Performance. Top Shelf Components. Revolutionary Concierge Service.

Featuring the power to fascinate, this luxury Velocity Micro computer has the muscle you need and the refinement you deserve. Meticulously handcrafted and supported by in-house expert technicians, Velocity Micro's award-winning systems create the perfect PC experience.

To learn more about Velocity Micro,
click www.velocitymicro.com/WhyMe
call 800-303-7866

VELOCITY micro

BUY DIRECT FROM VELOCITY MICRO >> GAMING • DIGITAL MEDIA • HOME OFFICE

Also available at BEST BUY & circuit city

Please visit **www.velocitymicro.com** today to configure your own system today. © 2007 Velocity Micro Inc., Richmond, VA. Velocity Micro and the Velocity Micro logo are registered trademarks of Velocity Micro, Inc. All other trademarks are the property of their respective owners and are hereby acknowledged. © 2007 Intel Corporation. All rights reserved. Intel, the Intel logo, Intel Inside, the Intel Inside logo, and Intel Core 2 Duo are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

Copyrighted material

THE BIG

PICTURE

BY KATHERINE STEVENSON

Today's massive desktop LCDs look stunning, but will their hidden secrets leave buyers with big remorse?

It used to be that a 24-inch LCD was the height of desktop decadence for an enthusiast. With a 1920x1200 resolution, the 24s delivered maximum screen space and performance. Well, 24 is king no more. In fact, an onslaught of larger screens has rendered 24 inches downright quaint.

New to the scene are 26/27-inch panels, with several vendors adding the category to their product lines. It makes perfect sense, really. These screens offer the same 1920x1200 resolution and 16:10 aspect ratio as a 24-inch LCD, just spread out over a greater expanse. It's easier on the eyes when you're doing desktop work, and movies and games appear that much grander.

Also of interest are the latest 30-inch desktop panels. It's not a new category, but it's become more attractive now that most high-end consumer graphics cards offer the dual-link interface and horsepower needed to run these 2560x1600-resolution screens. That pixel density across a 30-inch expanse will give you almost more screen real estate than you'll know what to do with, but the question remains: Is this a power user's paradise or a niche product?

You owe it to yourself to understand today's large-screen market before you succumb to the urge to buy a big, pretty screen.

PHOTOGRAPHY BY MARK MADEO

BEFORE YOU BUY

Size matters, but it's not the only important spec. Here's what you should consider when shopping for a large desktop LCD

NATIVE RESOLUTION

Every LCD sports a fixed number of pixels arrayed in a grid. The native resolution is the width of the display in pixels (for example, 1920) by the height in pixels (1200). Running your display at its native resolution will deliver the optimal picture. While it's possible to run an LCD at a lower non-native resolution, the image will be rescaled, and the display will double up some pixels to fill in the missing places, which can degrade image quality. This is of particular concern to gamers, who often run games at low resolutions to boost frame rates. Also consider that a higher resolution makes everything look smaller onscreen but gives you a proportionally larger desktop.

ASPECT RATIO

A display's aspect ratio is its screen width divided by its height. Standard desktop monitors have a 4:3 aspect ratio, while widescreen models are typically 16:9 or 16:10. If content, such as a game, insists on a 4:3 ratio, it will stretch to fill the entire screen, making everything look fatter than it should. This is becoming less of a problem every day, as most games support at least one widescreen mode that isn't distorted. Make sure that's true of your favorite titles.

INTERFACE

We insist on a digital video interface (DVI), since this allows the videocard to send pixel info to the screen in an unconverted digital format—converting an analog signal to a digital signal introduces errors. Until recently, most consumer graphics boards supported only single-link DVI, but that interface doesn't deliver enough bandwidth for resolutions greater than 1920x1200. If you're in the market for an ultra-high-res 30-inch screen, make sure your videocard offers support for dual-link DVI, which essentially doubles the bandwidth of a single link.

PIXEL RESPONSE TIME

This is the time (measured in milliseconds) it takes for a pixel to change phase. A slow response time can induce artifacts in rapidly changing content, such as a game. Unfortunately, LCD vendors have different ways of measuring and reporting this number, so it's not a reliable means of comparison. You're better off judging a panel's pixel-response performance based on a hands-on evaluation or the testimony of experts *(ahem)*.

HDCP

A big, widescreen LCD simply begs to be used for viewing high-def movies, but this won't be possible if your display lacks HDCP support—the content protection required to play commercial HD DVD or Blu-ray discs.

CONTROLS

The degree to which you can adjust an LCD's picture via the onscreen display (OSD) varies among monitors; in some cases, you have fewer options with the DVI because the manufacturer skimped in this area. At a bare minimum, you should have control over color, brightness, and contrast.

ERGONOMICS

Obviously, the more you can adjust your screen's height, tilt, and orientation to fit your needs, the better.

BIG NOW BEGINS AT 26 INCHES

It's as if the 24-inch screens got caught juicing—same 1920x1200 resolution, same wide aspect ratio, just pumped up to fill a larger space. Here's what we think of three 26/27-inch models

ACER AL2616WD

OK, so the 26-inch measurement includes the bezel (a common convention in LCD marketing)—still, we're talking 25.5 viewable inches of screen. That's 10.2 percent more area than you get with a 24-inch screen. But while Acer goes big on the panel, it spares all extra amenities (unless you count the craperific built-in speaker, which we don't). The AL2616Wd's bronze-and-black plastic cabinet looks a little low rent and lacks any adjustability, save front-to-back tilt. And we don't put much stock in the thin, flimsy DVI cable that shipped with the unit. But even if we were to buy a replacement cable, Acer's AL2616Wd would cost far less than competing panels. And truth be told, it's a decent performer for the price.

Onscreen display (OSD) buttons beneath the front bezel are easy to navigate and include user-controlled color sliders, but we found little need to futz with the screen's settings. In DisplayMate (www.displaymate.com), the AL2616Wd reproduced a rich, uniform dark screen, although some backlight was evident around the perimeter, and the panel

The grandeur of the Acer AL2616Wd's nice, big screen is hurt by its low-rent housing.

adeptly handled grayscales of up to 256 steps. But we did notice anomalies in text reproduction. While black text on a white background was perfectly legible at 9 points, black-on-gray and white-on-black at the same point size lacked sharpness and was bothersome to read. This was not the case with the other two monitors reviewed here.

All other content, including digital pictures, games, and movies—both standard and HD format (even with HDCP)—looked perfectly acceptable on the AL2616Wd when viewed straight on. Darker content lost contrast and detail when viewed off axis. This LCD is solid, not superb.

VERDICT: 7

$760, www.acer.com/us

NEC MULTISYNC LCD2690WUXI

Its name might be three times the length of the Acer model's, but NEC's LCD2690 (our nickname for it) sports the same 25.5 viewable inches of screen. Like Acer's display, it features an austere design, but it's much better executed. The cabinet is basic black—unadorned and unobtrusive, but by no means unaccommodating. The LCD2690 features a telescoping neck for height adjustment, plus swivel, tilt, and rotate functions; it also offers an array of OSD options, including individual color sliders for yellow, cyan, and magenta in addition to the standard red, green, and blue. An advanced option menu offers further tweaks. And when you're using the OSD, tiny icons appear onscreen near the buttons, so you can navigate the menu in the dark. It's neat, but the menu is still a bitch to figure out.

The LCD2690 boasts a "92 percent color gamut"—a phrase we're seeing used more and more to describe LCDs. The measure refers to the range of colors the screen can display, and the increase is primarily attributed to the use of an improved backlight, commonly known as wide cold-cathode fluorescent lighting, or W-CCFL. If a standard LCD is known to display 72 percent of the color gamut as specified by the National Television Systems Committee (NTSC), then the increased breadth of the LCD2690's gamut should be noticeable. In our tests, however, it wasn't. The NEC's colors looked vibrant and lifelike, but no more so than what we saw on Acer's model, which makes no such claims of its color gamut.

Still, there was much to like about the LCD2690. Games and movies (including those with HDCP) looked large and in charge on the screen and in both scenarios the picture was notably strong off axis. The monitor also held up to DisplayMate's strict standards, except in one area: In tests that reveal the uniformity of an LCD's backlight, the LCD2690's appeared a bit blotchy and uneven. With most content you wouldn't notice it, but when the screen is predominantly filled with a solid, low-intensity color, it is apparent, and even distracting. A small but annoying chink in this pricey screen's armor.

VERDICT: 9

$1,700, www.necdisplay.com

NEC's LCD2690: Now with more color spectrum?

	ACER AL2616WD	NEC MULTISYNC LCD2690WUXI	DELL 2707WFP
VIEWABLE SCREEN (INCHES)	25.5	25.5	27
INTERFACE	DVI, VGA, Audio (for built-in speaker)	DVI, VGA	DVI, VGA, S-Video, Composite, Component, 9-in-2 media reader, 4 USB 2.0

Dell's 2707WFP stomps the competition with a bolder, ballsier look and feel.

DELL 2707WFP

Dell also asks for a steep fee to step up from 24 inches, but it sweetens the deal in a couple key areas. The "27" in this product's name refers strictly to screen size. And those 27 viewable inches of liquid-crystal real estate amount to a 13.6 percent area advantage over the other two models here. It's tough to argue with that! DVI, VGA, S-video, composite, and component options (along with picture-in-picture, picture-by-picture, and HDCP support) let you share the display with various input devices, e.g., a TV, console, or cable box—which makes a lot of sense on a screen this size. Indeed, the 2707WFP is clearly poised as a product for digital enthusiasts.

Its aesthetics echo that sentiment. In a departure from Dell's typically staid desktop line, the 2707WFP rocks brushed aluminum with shiny silver accents and a reflective black base. It sports a more elaborate button scheme on its front bezel and a revamped OSD with a healthy array of options. And the screen physically adjusts for height, tilt, and swivel preferences.

Like NEC's entrant, the 2707WFP proclaims a 92 percent color gamut, but, again, the range seemed no more expansive than Acer's. More to Dell's favor is the relative size of its screen compared with its competitors'. Digital pictures, games, and movies that looked nice on the other two LCDs appeared that much more outstanding on the 2707WFP, even off axis. This screen's only fault was a hint of color tracking errors in DisplayMate's grayscales of 64 steps or more—which we couldn't detect in any of our real-world content. It's a matter we can forgive in an otherwise damn-fine monitor.

VERDICT: 9

$1,400, www.dell.com

MAXIMUM PC KICKASS

MAXIMUM PC

MOD SHOP

Coming September 2007

Copyrighted material

DO 30-INCH SCREENS OFFER MORE TO LOVE?

Now that more consumer graphics cards sport dual-link DVI, larger screens boasting 2560x1600 ultrahigh resolutions are a tempting prospect for power users

DELL ULTRASHARP 3007WFP-HC

Dell's update to its original 30-inch model is distinguished by the "HC" at the end of its name. The letters stand for "high color" and denote the screen's ability to display—can you guess it?—92 percent of the NTSC color gamut.

Interestingly, while we saw no difference between Dell's 2707WFP and its "72-percent color" competitor, we did see a difference between Dell's 30-inch HC and its predecessor, the plain-old 3007WFP. Primary colors in particular were noticeably more intense on the new HC model. For instance, when viewing a high-res photograph of a partially shaded garden on both screens, the colors of the foliage popped from the shadows on the HC while appearing muted on the 3007WFP. And in a whole series of digital photos, illustrations, videos, and games the 3007WFP-HC had a more vivid, richly colored picture.

Sure, it's possible some of the HC's color depth can be attributed to its backlight, but we suspect that at least some is the result of an overly warm screen tone, which in itself can add intensity to hues. The warmth is especially apparent in skin tones, which appear uniformly flushed on the 3007WFP-HC, and in reds, which can look unnaturally bright—a blood-soaked hanky in *Terminator 3*, for example, looked like it was dipped in berry juice. Whatever the cause, the 3007WFP-HC's extreme colorfulness works well in some instances—such as gaming—creating a bold, brilliant picture, but at other times makes the screen image look overly saturated and artificial.

Dell's 3007WFP-HC is the company's second attempt at a 30-inch monitor, but we're still not sold.

The HC's gamut certainly wasn't all that great in DisplayMate's grayscales. When tasked with 65 or more steps of transition, white was indistinguishable from very light grays, as were dark grays from black.

Regarding the 30-inch category as a whole, don't expect any onscreen display controls for tweaking anything other than brightness. These screens lack an internal scaler, the necessary component for making any adjustment to a screen's picture, be it resolution, color, gamma, etc. The cost of the silicon needed to perform these operations across this many pixels is simply too high to be practical. Thus, any scaling must happen via the videocard, a less-than-optimal solution. It's an interesting paradox that these very large screens, which are a natural fit for content creators, offer compromised control over picture quality.

Here's another interesting paradox: These ultra-high-res screens are hobbled by HD content. Today's graphics cards carry HDCP over only a single-link interface, and without a scaler, the monitor's only single-link res is half its maximum: 1280x800. Not even 1920x1080! That's ridiculous. (See In the Lab on page 56 for more details).

Gaming performance is acceptable, without any obvious ghosting, but face it, unless you're running dual 8800s, your frame rate will suffer at native resolution.

Yes, the Dell 3007WFP-HC has sheer size and a sharp picture going for it, and an adjustable stand, a media reader, and four USB ports are nice, but we'd just as soon wait for the technology to be refined.

VERDICT: 7

$1,700, www.dell.com

HP's LP3065 is Dell's brother from another mother.

HP LP3065

At the risk of seeming lazy, we'll sum up HP's LP3065 by saying it's pretty much like Dell's 3007WFP-HC. In fact, we'd wager that the two panels come from the same manufacturer, so similar are their qualities. It's not such a far-fetched assumption, as there are really only a handful of LCD-panel makers, and that number surely diminishes at this screen size. Like Dell's 30-inch HC, HP's screen possesses a 92-percent-color-gamut-producing W-CCFL backlight.

Regardless, the similarities are many. A warm overall screen tone? Check. Dazzling colors that sometimes seem overkill? Check. Blown-out light and dark grays? Checkity check. To see how the latter issue manifests in regular use, we looked at high-res digital images with lots of subtle shading and detail. And with both the Dell and HP models we saw, for instance, that a rendered piece of parchment paper lacked texture and the light pencil smudges on a scanned architectural draft weren't visible. Such subtleties *were* apparent on Samsung's 30-inch 305T, but more on that later.

Like Dell's 3007WFP-HC, the LP3065 sports four USB 2.0 ports, support for HDCP, and height, tilt, and swivel adjustability. But HP offers three DVI inputs (dual-link, of course) to Dell's one, so you can use this display with multiple computers. On the other hand, HP's LP3065 lacks any media reader. And this is what it really comes down to for the consumer deciding between the Dell and HP models. Those niggling differences aside, you're looking at two very similar, very large, very vibrant LCDs—that are by no means perfect.

VERDICT: 7

$1,700, www.hp.com

If your appetite for pixels outweighs practical matters, look no further than Samsung's 305T.

SAMSUNG SYNCMASTER 305T

If you don't mind the lack of controls, subpar HDCP support, and frame-rate hit in games that are inherent to a 2560x1600-res display, we'd recommend that you opt for Samsung's SyncMaster 305T.

The 305T boasts a decidedly cooler tone. It's not overly blue, but it is slightly off center of neutral. Next to the warm-toned displays, it even appeared a bit muted at times, but overall its color was much more lifelike in all kinds of content. On the 305T, skin tones looked natural, not ruddy, and colors seemed accurately balanced. Details such as fine lines and light freckles, which eluded the other two screens, were clearly visible. Sure enough, the 305T was far more adept at reproducing grayscales in DisplayMate than its competitors. Every step of the scales was accounted for and transitions were smooth and flawless.

Gaming was good for the most part, though in areas of high contrast there was a little more evidence of smearing than on the other two panels. But, again, none of these panels is ideal for games, particularly if you lack ultimate graphics power. Either you will forsake some image quality, via interpolation or disabled visual effects, in order to increase your frame rate, or you will experience some lag if the monitor is set at its native ultrahigh res. There are serious gamers on our staff who think the majesty of these big screens makes up for the compromises, others don't.

The 305T comes with a single DVI port, a telescoping neck, a lazy-Susan-like stand, four built-in USB ports, and HDCP. All told, it's the best of the unusual 30-inch breed.

	DELL 3007WFP-HC	HP LP3065	Samsung 305T
VIEWABLE SCREEN (INCHES)	30	30	30
INTERFACE	DVI, 4 USB 2.0, 9-in-2 media reader	3 DVI, 4 USB 2.0	DVI, 4 USB 2.0

VERDICT: 8

$1,800, www.samsung.com

STEALTH YOUR MONITOR

Your monitor may be mondo, but it needn't impede your view! Create wallpaper that seamlessly blends in with your background in three easy steps!

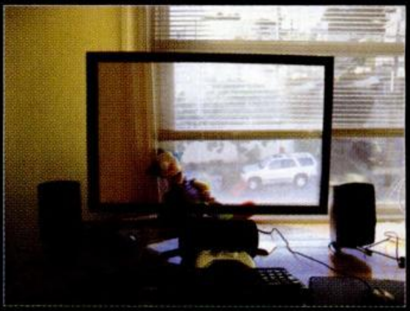
WHAT YOU'LL NEED → **A digital camera** → **A tripod** → **Photo-editing software**

STEP 1: CLEAR YOUR DESK

The first thing you'll need to do is clean off your desk to take a picture of whatever's behind your monitor. You'll have to move your display, but before you do that, make sure there are several points of reference in your work area, so you'll easily be able to tell where you need to crop the screen.

STEP 2: TAKE THE SHOT

Now, set up your camera on a tripod. The camera should be exactly at the same position your head is at when you're sitting at your desk. Use your reference points to help fill as much of the frame as possible with pixels you'll be able to use. It's best to shoot without a flash, so you should try several different exposures for optimal results. It's also funny to put something unexpected behind the display—like our Evil Krusty doll.



STEP 3: CROP THE SHOT

This is the tricky part. First, replace your monitor on your desk, then crop the shot to match up with the background behind your display. It will take a few tries, so be sure to save the uncropped original somewhere safe. That's all there is to it!

MPC

THE OFFICIAL EXPANSION PACK OF *MEDIEVAL II: TOTAL WAR*

MEDIEVAL II
TOTAL WAR™
KINGDOMS

AUGUST 2007

27 NEW MAPS. 110 NEW UNITS. 13 NEW FACTIONS.
FOUR NEW CAMPAIGNS TO CONQUER.

TAKE CONTROL OF LEGENDARY HISTORICAL
HEROES TO BOOST TROOP MORALE AND POWER.

EXERT ABSOLUTE MILITARY CONTROL AS YOU
COMMAND MULTIPLE ARMIES AND REINFORCEMENTS.

new world. new enemies. new conquests.

TEEN
T
ESRB CONTENT RATING www.esrb.org

- Alcohol and Tobacco Reference
- Blood
- Mild Language
- Sexual Themes
- Violence

Game Experience May
Change During Online Play

REQUIRES *MEDIEVAL II: TOTAL WAR* TO PLAY

PC
DVD-ROM
SOFTWARE

SOUNDS BEST ON
Sound Blaster X-Fi
TECHNOLOGY

the Creative Assembly

"90%"
- PC Gamer

POWERED BY gamespy

PC GAMER EDITORS' CHOICE

IGN.COM EDITORS' CHOICE AWARD

GAME INFORMER PC GAME OF THE MONTH

www.totalwar.com

TOTAL WAR

SEGA
www.sega.com

© 2007 The Creative Assembly Limited. Total War, Medieval: Total War, Medieval: Total War Kingdoms, and the Total War logo are trade marks or registered trade marks of The Creative Assembly Limited in the United Kingdom and/or other countries. SEGA i registered in the U.S. Patent and Trademark Office. SEGA and the SEGA logo are either registered trademarks or trademarks of SEGA Corporation. GameSpy and the "Powered by Gamespy" design are trademarks of GameSpy Industries, Inc. The Creative logo, Sound Blaster logo, X-Fi logo, EAX logo, EAX ADVANCED HD logo are registered trademarks of Creative Technology Ltd. in United States and/or other countries. The ratings icon is a registered trademark of the Entertainment Software Association. All other trademarks and trade names are the properties of their respective owners. All rights reserved.

Cone Speakers **vs.** Flat-Panel Speakers

We've seen very little change in basic speaker design over the years: Nearly every speaker system we've tested has consisted of a cone driver inside a box. The only other design to make its way into the types of audio systems you'd pair with a PC or MP3 player has been the flat-panel transducer developed and licensed by NXT. Why hasn't this glitzy technology made further inroads against the boring old cone?

To satisfy our curiosity, we asked NXT to recommend the best example of its technology that could be purchased at retail. And then we scratched our heads when the company recommended two products we'd ripped in earlier reviews. When Tascam was unable to resend us the 2.1-channel VL-S21 speaker system we *did like,* we asked NXT to send us the closest product to it: It came up with Brookstone's Wafer-Thin CD/MP3 Shelf System (yeah, we cringed too, but the speakers use genuine NXT technology). In order to maintain pricing parity, we chose Creative Labs's budget-priced GigaWorks T20 speakers to represent cone-speaker technology.

BY MICHAEL **BROWN**

round 1

LOW-END FREQUENCY RESPONSE

There's no contest here: A cone speaker acts like a piston, moving a diaphragm in and out to displace the air at its surface. The larger the cone, the more air the speaker can displace. That's just the ticket for producing the long sound waves needed to produce gut-punching bass.

As cool as they might look, flat-panel transducers are physically incapable of generating frequencies below about 150Hz. The only NXT-based speaker systems we've auditioned that are worth listening to are ones that mate NXT panels with a hefty sub-woofer that uses—you guessed it—a large cone speaker to produce bass.

WINNER: CONE SPEAKERS

CREATIVE
CREATIVE

CONE SPEAKERS
Creative Labs GigaWorks T20
$100, www.creative.com

round 2

HIGH-END FREQUENCY RESPONSE

High frequencies are characterized by short waves, so flat-panel speakers are on a much more equal footing on this score because they don't need to displace as much air to create these sounds. Listening to the title track of Jesse Sykes's *Oh, My Girl,* we were pleased with the Brookstone speakers' performance reproducing cymbal strikes and the upper spectrum of the acoustic guitar.

But when we played the same track on Creative's speakers, we realized how underrepresented midrange frequencies were on the NXTs. Sykes's vocals sounded much lusher on the cone speakers, which we attribute to the presence of both a tweeter and a midrange driver.

WINNER: CONE SPEAKERS

round 3

STEREO SWEET SPOT

Because of their concave nature, cone speakers can't help but project sound. This renders them highly directional, so they tend to create a relatively small sweet spot where audio from the left and right channels is perfectly balanced. Small cone speakers, like the Creative GigaWorks T20s used for this test, are best suited for near-field listening environments. Move more than a few feet away, and their capacity for producing a stereo image collapses.

Since the entire surface area of a flat-panel speaker produces sound, these speakers are nearly omnidirectional and are, therefore, capable of creating a very large stereo sweet spot. The very low frequencies a subwoofer produces are also nearly nondirectional, which is why a subwoofer can be placed nearly anywhere in the listening environment.

WINNER: FLAT-PANEL SPEAKERS

round 4

VERSATILITY

Cone speakers require boxlike enclosures to do their thing, there's no getting around it. The larger and more capable the speaker, the larger the enclosure it needs. Aesthetically speaking, big boxes and svelte LCD and plasma monitors—or paper-thin projector screens, if that's your thing—just don't get along.

Flat-panel speakers, particularly those based on NXT's patented technology, can fit just about anywhere and be integrated into an astounding variety of materials, including fabric. Amina Technologies manufactures speakers that can be not only mounted inside a wall, but also completely hidden behind wallpaper or even a skim coat of plaster without affecting their acoustic performance. Tannoy uses the same technology to build speakers that disappear into suspended-tile ceilings.

WINNER: FLAT-PANEL SPEAKERS

FLAT-PANEL SPEAKERS

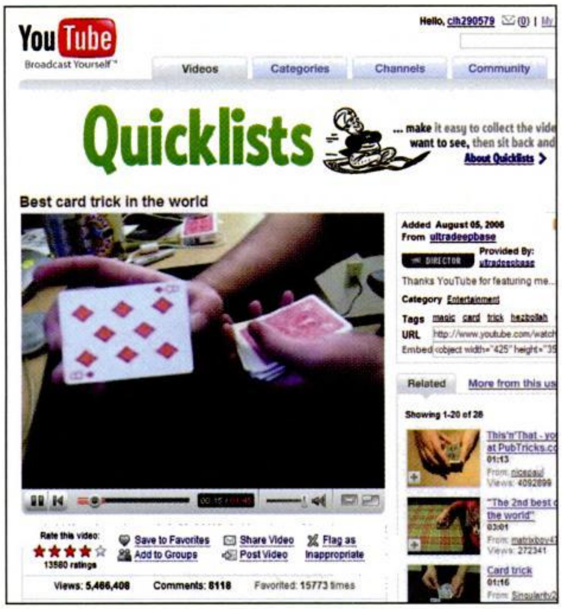
Brookstone Wafer-Thin CD/MP3 Shelf System

$200, www.brookstone.com

And the Winner Is...

Yeah, these two technologies split the wins in our four criteria, but we value audio fidelity much more than we appreciate the ability to camouflage boxes, so we're giving the nod to cone speakers. No matter how good a flat-panel speaker may be—and there are a few very high-end configurations out there—they will always depend on a cone-based subwoofer to reproduce anything close to the entire sonic spectrum. Meanwhile, the cone speakers in the very inexpensive GigaWorks T20 speakers proved capable of delivering respectable bass even without a sub.

Although we've panned a couple of absolutely dreadful implementations of NXT's technology—namely, Logitech's lame mm28 portable speakers and Kensington's absurdly expensive SX 2000 iPod speaker system—we heaped praise on Tascam's VL-S21 budget studio monitors. But when we want an audio system that can serve up anything from the splendor of a Mahler symphony to the delicious splat of a headshot in Rainbow Six, we'll rely on our old-fashioned cone speakers.



Best card trick in the world

Added August 05, 2006
From ultradeepbase
Provided By: ultradeepbase
Thanks YouTube for featuring me...
Category Entertainment
Tags magic card trick hezbollah
URL http://www.youtube.com/watch
Embed <object width="425" height="35

Showing 1-20 of 28

This'n'That - yo at PubTricks.c
01:13
From: nicepaul
Views: 4092899

"The 2nd best c the world"
03:01
From: matrixboy47
Views: 272341

Card trick
01:16
From: Singularity2

13580 ratings
Views: 5,466,408
Comments: 8118
Favorited: 15773 times

Broadcast Your Videos with YouTube!

Find your favorite clips and post your own to the world's largest video-sharing site

Though most of the videos on YouTube are basic affairs, that hasn't stopped its popularity from growing at an incredible rate. It's this popularity that led Google to pay enormous sums for the company last year. So what exactly is YouTube and how does it work?

YouTube is a video-sharing website where users can upload, view, and share clips—everything from amateur home camcorder footage to professional music videos and animation. It's unmistakably part of the Web 2.0 culture. Users can rate videos, and the average rating and number of times a video has been watched are published, making it easy to select which clip you want to view from the tremendous number available. There are also comments and tags to help you find what you want and read more about the topic of each video.

BY CHRISTIAN **HALL**

OWNERSHIP ISSUES

If you just want to search and watch videos, all you need do is head to www.youtube.com and start viewing. However, as with most social-sharing websites, you really need to register to get the most out of YouTube—and you have to if you want to upload content.

To register, you'll need to give the usual information, such as providing an email address and filling out an online form and agreeing to the terms and conditions. Do be aware that since 2006, YouTube owns all the content on its site and has the right to redistribute it "on other media" and "modify the uploaded material for any purpose." So far no such redistribution has taken place, but if you're concerned about the terms and conditions, read them in depth at **http://youtube.com/t/terms**. They also state that users may upload videos only if they have the permission of the copyright holder and of the depicted persons. Furthermore, "Pornography, defamation, harassment, commercial advertisements, and material that encourages criminal conduct may not be uploaded."

CONTENT GALORE

YouTube is one of the most constantly changing sites on the web, and that's why you need to grow accustomed to its layout to get the most from it. The homepage has four tabs: Video, Categories, Channels, and Community. There's also a section called "My" for registered users, which features links to your favorite videos and channels.

The homepage features a selection of the current highly rated video clips and a summary of your profile, which is a good way of seeing at a glance how many videos you've watched/posted and whether you have any mail from fellow YouTubers.

Click the Video tab to open up the Video section, an up-to-the-minute selection of the most popular videos. Look to the left of the video thumbnails and you'll find a detailed list of how you can make a selection from the day's popular videos, right down to language and the time they were posted.

The Categories tab helps you narrow down the type of video you're searching for, such as Sports or Comedy. To make searching easy, you'll always find a traditional search box at the top and bottom of any YouTube page.

YouTube Channels is where members upload videos in a specific category so other users can receive notifications of when there are new videos that might interest them. You can subscribe and get new videos delivered to you as they arrive. It's just the place to explore new amateur musicians as well as sampling official channels such as well-known bands or celebrities.

Community is where you can join like-minded video fans and share your favorites, much like photo groups in Flickr. Community is divided up into Groups (where users share videos of similar interest) and Contests (where users set challenges to prompt copies of a video, such as "What are your 10 favorite things?").

Once you've explored what's available on YouTube, you can start uploading your own videos. Thankfully, the upload process has been simplified to minimize the amount of technical expertise needed to ready a video for posting.

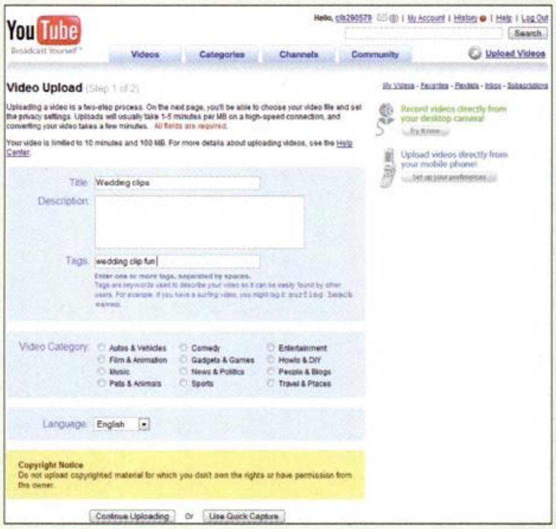
Uploading a video is a two-step process. On the first page you'll enter the name of your video, a description, and any tags—again, much like photo-sharing site Flickr. On the next page you can choose your video file and set the privacy settings. Uploads will usually take between one and five minutes per megabyte on a broadband connection, and converting your video also takes a few minutes. YouTube restricts content to 10 minutes (though longer videos seem to slip through the net) and 100MB.

5 Quick Tips

1. Find deleted YouTube videos at **youtube.infamousx.com.**
2. Unless your username is specified as a tag, it won't be indexed for a video search.
3. For the best viewing, get a connection with at least 500Kbps.
4. If videos are struggling to load, it may be due to your version of Flash. Uninstall the old one before installing the new one.
5. To split a large video into smaller segments, use FLV Parser (found at **www.peldi.com/blog**).

Post Your Videos

It's as easy as 1, 2, 3…


You Tube
Broadcast Yourself™
Hello, clh290579 | My Account | History | Help | Log Out
Search
Videos
Categories
Channels
Community
Upload Videos
My Videos - Favorites - Playlists - Inbox - Subscriptions
Record videos directly from your desktop camera!
Upload videos directly from your mobile phone!
Set up your preferences

Video Upload (Step 1 of 2)

Uploading a video is a two-step process. On the next page, you'll be able to choose your video file and set the privacy settings. Uploads will usually take 1-5 minutes per MB on a high-speed connection, and converting your video takes a few minutes. All fields are required.

Your video is limited to 10 minutes and 100 MB. For more details about uploading videos, see the Help Center.

Title: Wedding clips

Description:

Tags: wedding clip fun

Enter one or more tags, separated by spaces.

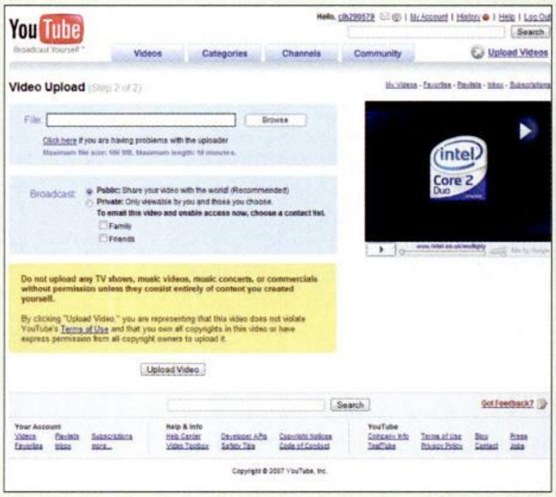
Video Category: ○ Autos & Vehicles ○ Film & Animation ○ Music ○ Pets & Animals ○ Comedy ○ Gadgets & Games ○ News & Politics ○ Sports ○ Entertainment ○ Howto & DIY ○ People & Blogs ○ Travel & Places

Language: English

Copyright Notice
Do not upload copyrighted material for which you don't own the rights or have permission from the owner.

Continue Uploading Or Use Quick Capture

Click the Upload Videos button on the homepage and you'll be taken to a new page. It's essentially a two-step process where you enter the required fields for publishing and then add more details later. Uploads usually take one to five minutes per megabyte.


You Tube
Broadcast Yourself™
Hello, clh290579 | My Account | History | Help | Log Out
Search
Videos
Categories
Channels
Community
Upload Videos
My Videos - Favorites - Playlists - Inbox - Subscriptions
intel
Core 2 Duo
Browse
Search
Got Feedback?
Your Account
Videos
Playlists
Subscriptions
Favorites
Inbox
more...
Help & Info
Help Center
Video Toolbox
Developer APIs
Safety Tips
Copyright Notices
Code of Conduct
YouTube
Company Info
TestTube
Terms of Use
Privacy Policy
Blog
Contact
Press
Jobs

Video Upload (Step 2 of 2)

File:

Click here if you are having problems with the uploader

Broadcast: ● Public: Share your video with the world! (Recommended)
○ Private: Only viewable by you and those you choose.
To email this video and enable access now, choose a contact list.
☐ Family
☐ Friends

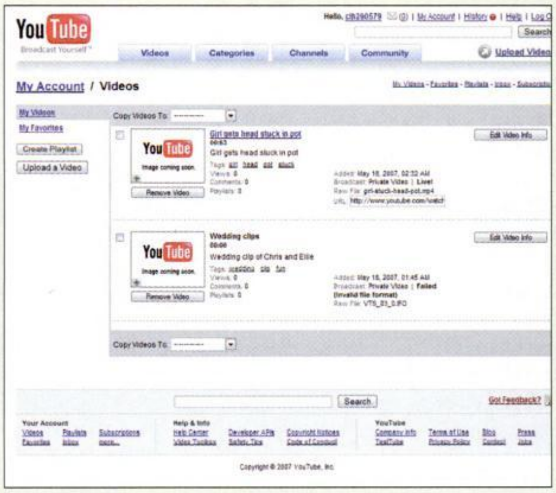
Do not upload any TV shows, music videos, music concerts, or commercials without permission unless they consist entirely of content you created yourself.

By clicking "Upload Video," you are representing that this video does not violate YouTube's Terms of Use and that you own all copyrights in this video or have express permission from all copyright owners to upload it.

Upload Video

Copyright © 2007 YouTube, Inc.

Now locate the file you wish to upload. It can be on your hard drive or any other storage device attached to your PC. The fields you'll need to fill in here relate to whether the video is private or public, but you can change this information later.


You Tube
Broadcast Yourself™
Hello, clh290579 | My Account | History | Help | Log Out
Search
Videos
Categories
Channels
Community
Upload Videos
My Videos - Favorites - Playlists - Inbox - Subscriptions
My Videos
My Favorites
Create Playlist
Upload a Video
Copy Videos To:
Edit Video Info
Remove Video
Image coming soon.
Search
Got Feedback?
Your Account
Help & Info
YouTube

My Account / Videos

Girl gets head stuck in pot
Girl gets head stuck in pot
Tags: girl head pot stuck
Views: 0
Comments: 0
Playlists: 0
Added: May 18, 2007, 02:32 AM
Broadcast: Private Video | Live!
Raw File: girl-stuck-head-pot.mp4
URL: http://www.youtube.com/watch

Wedding clips
00:00
Wedding clip of Chris and Ellie
Tags: wedding clip fun
Views: 0
Comments: 0
Playlists: 0
Added: May 18, 2007, 01:45 AM
Broadcast: Private Video | Failed (invalid file format)
Raw File: VTS_01_0.IFO

Copyright © 2007 YouTube, Inc.

Your new video will now show up in My Videos, but be aware that if your video failed to upload correctly, you'll find out only in My Videos. If you don't see your video title in blue, then the video hasn't been uploaded.

Master YouTube!

Tweak your video uploads, manage videos and channels, and explore YouTube gadgets

When you're uploading a video to YouTube, you'll get a final chance to review the criteria, such as whether it's a public or private video and what the rules are for posting comments about your clip and rating it. You can also add more details such as date/time of recording and the location. You can make changes to this information at any time in My Account > Edit My Video.

You can also upload videos straight from your mobile phone or webcam. Quick Capture makes it possible to record a YouTube video instantly via your computer's webcam. The upload process is similar to the standard video-upload process and you can tell Quick Capture to auto-detect your camera and mic so it literally takes a minute to get set up. First enter information about the video in the appropriate fields, choose your webcam, and then press Record.

Enhance Your YouTube Clips

Add your own music and photos to a YouTube video

YouTube accepts videos that have been edited with photographs and music to make a standalone video. That's ideal for home videos of special occasions that you want to share with friends and family.

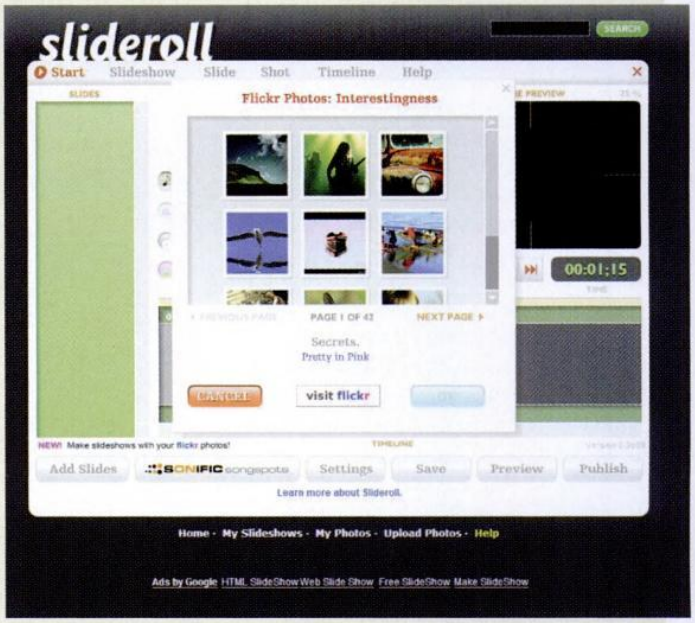
A great online tool is Slideroll (**www.slideroll.com**), a photo-slideshow maker that publishes straight to sites such as YouTube and MySpace. You can import photos and use the timeline to create a slideshow in time with your favorite tunes. It also integrates directly with Flickr, enabling you to quickly import your online-photo collection into a video for YouTube. You can create slideshows for YouTube videos using most DVD authoring software, as long as you save the files you produce in formats that YouTube can deal with, such as .wmv, .avi, .mov, and .mpg.

YouTube now offers a simple way to add a different audio track to your video using a tool called AudioSwap (**http://youtube.com/audioswap_main**). Click Try AudioSwap and then select the video file and audio track. Select a genre, artist, and track—don't worry, you can play around with as many as you want before adding one to your video. Keep the length of your video in mind, making sure that the audio track you select is at least as long as the footage. Once you've picked a track, click the Publish Video button. When you're asked if you want to change your audio track, click OK. Depending on the length of your video and format, it may take some time to update the audio.

EMBED YOUTUBE VIDEOS

The ability to embed YouTube clips directly into websites or blogs has been part of its success. If you search through the blogosphere, you'll stumble across embedded YouTube videos pretty frequently, and thankfully the coding needed to make this happen is simple. So if you have your own site, YouTube could be a great addition to it.

The YouTube-embeddable player is a simple piece of HTML that you can insert into your site's code. Copy and paste the HTML snippets found at **www.youtube.com/sharing**. Now visitors can play the video without ever leaving your site. You can alter its size by changing the width or height.


sliderǫll
SEARCH
Start
Slideshow
Slide
Shot
Timeline
Help
SLIDES
Flickr Photos: Interestingness
PAGE 1 OF 42
NEXT PAGE ▸
Secrets.
Pretty in Pink
CANCEL
visit flickr
00:01;15
NEW! Make slideshows with your flickr photos!
TIMELINE
Add Slides
SONIFIC songspots
Settings
Save
Preview
Publish
Learn more about Slideroll.
Home · My Slideshows · My Photos · Upload Photos · Help
Ads by Google HTML SlideShow Web Slide Show Free SlideShow Make SlideShow

PLAYING TAG

Another option is to put an HTML snippet on your website that automatically pulls up the latest videos with a certain tag. Say you want your site to show all videos related to football, and you want your site to be automatically updated whenever someone uploads a new video with the tag term "football." Again, go to **www.youtube.com/sharing** to copy and paste the relevant snippet.

If you want to download YouTube videos directly to your PC, YouRipper (**www.remlapsoftware.com**) is one of the easiest tools to use. YouRipper also has its own video player, enabling you to quickly add those downloaded videos to your site. Videos are downloaded as Flash (.flv) files, so you may need to convert them if you wish to use a more common media player such as iTunes, Windows Media Player or RealPlayer. A number of excellent tools can do this, including Total Video Converter (**www.effectmatrix.com/total-video-converter**) and Riva FLV Encoder (**www.rivavx.com**). There's also the FLV Online Converter (**http://vixy.net**), which is worth bookmarking.

Honor is his code.
Vengeance is his mission.
Bloodshed is his only option.

JOHN WOO PRESENTS
STRANGLEHOLD™

strangleholdgame.com

XBOX 360™ LIVE

PC DVD-ROM SOFTWARE

MIDWAY

TIGER HILL ENTERTAINMENT

PLAYSTATION®3

Stranglehold (c) 2007 Midway Amusement Games, LLC. All rights reserved. Stranglehold, MIDWAY, and the Midway logo are trademarks or registered trademarks of Midway Amusement Games, LLC. Used by permission. Midway Amusement Games, LLC and its affiliates do not monitor, endorse or accept responsibility for the content of any non-Midway website. Distributed under license by Midway Home Entertainment Inc. "PlayStation", "PLAYSTATION" and "PS" Family logo are registered trademarks of Sony Computer Entertainment Inc. Microsoft, Xbox, Xbox 360, Xbox LIVE, and the Xbox logos are trademarks of the Microsoft group of companies. Software platform logo (tm and c) IEMA 2006. The ratings icon is a registered trademark of the Entertainment Software Association. All other trademarks and trade names are the properties of their respective owners.

Available at
GameStop
power to the players

RATING PENDING
RP
CONTENT RATED BY
ESRB

Visit www.esrb.org for updated rating information.

Copyrighted material

There's also Mobile Upload, which is great for today's powerful cameraphones with increasingly good image quality. Mobile Upload makes it possible for you to upload videos to YouTube directly from your mobile phone, so you don't need to wait until you get home. To get started, click Create Mobile Profile. To make your Mobile Profile, fill in the fields to set default titles, tags, and categories for the videos that you send from your phone. When you click Create Profile, you'll receive the email address to which you can send the videos directly.

The settings you select will be used for all videos sent to that email, and you can override the title by typing "t: [the name of your title, no brackets]" into the body of the email message. You can also change any of the information for an individual video by going to My Videos and clicking the Edit Video button. You can create up to two different profiles to have alternative sets of phone-video default info; note, however, that each profile will have a different email address.

The ability to send videos from your mobile phone to a blog is a recent addition to YouTube, and currently the site supports Blogger, BlogSpot, LiveJournal, Wordpress, Piczo, and Friendster. To select your preferred blog provider (to make your uploads possible), go to My Videos > Video Posting Settings. You'll need to enter your blog's username and password. If you have more than one blog attached to an account, you'll be able to choose which one to post to later in the upload process.

ACTIVE SHARING

Thanks to YouTube's social-networking element, the site's content has greatly proliferated. When people see a video they like, they're compelled to share it with friends. That's why the YouTube bosses introduced Active Sharing—a real-time way of seeing who's watching what. Click the Start Active Sharing button (from the Active Sharing link on the homepage), and then watch some videos. Your username will show up on the page of the videos as you watch them, and a list of the latest ones you've seen will appear in your profile. When you start Active Sharing, your username will appear to other users on the videos you watch, and your current Active Sharing status is indicated either by a green (on) or red (off) dot.

MANAGING VIDEOS/ CHANNELS

Managing your videos and channels properly makes for better organization, which is essential, seeing as YouTube logs all the videos you've uploaded and watched. A new feature called QuickList makes a video playlist for later viewing, much like a playlist of songs in iTunes.

Click the "+" (in the lower left) of any video to add it to your QuickList. To view your list, look for the QuickList bar under any video you're watching. The account links at the top of every page will display the number of videos in your list and are also an easy way to get back to this page.

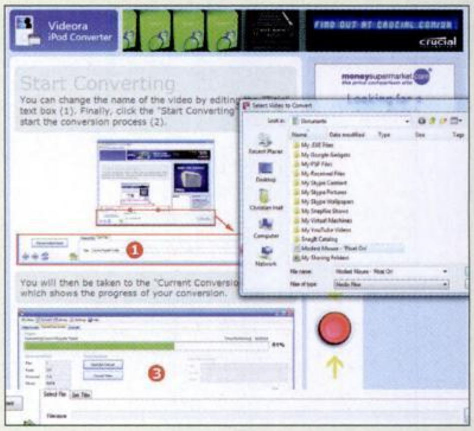
If you want to watch your entire QuickList at once, click Play All and it'll play everything until it reaches the end or you stop a video. You can set QuickList to remove videos as you watch them by clicking the checkbox at the bottom of the bar, or you can manually remove them by clicking the trash icon. If you want to save the list to share or to make it permanent, click Save and it'll appear as a regular playlist.

YOUTUBE'S ADD-ONS

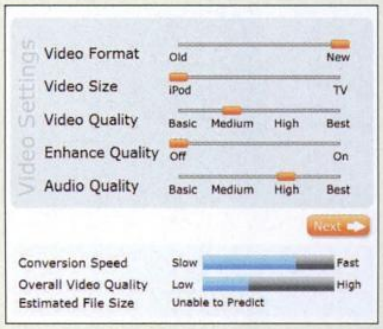
YouTube has grown so significantly as the video site of choice that plenty of other web applications have decided to incorporate it in different ways, from Vista Sidebar gadgets to video downloaders that you can integrate into your browser. The most common are search tools, which can be found for personal homepages such as iGoogle, PageFlakes or Netvibes, as well as a Vista Sidebar gadget that stays on your desktop and enables you to search for YouTube content directly. There are also some great websites such as Search The Tube (www.searchthetube.com), which is a good way to find the right YouTube video because it displays up to 100 video thumbnails at once on a web page.

Firefox has a handy extension, TubeStop (www.efinke.com/addons/tubestop), that will disable the autoplay on YouTube videos. This means you can open multiple YouTube videos in tabs in the background without them all starting to play at once. TubeStop also disables the autoplay on YouTube videos embedded in non-YouTube.com sites such as MySpace.

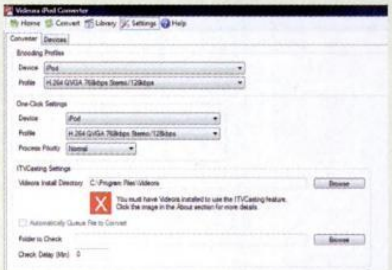
Convert YouTube Videos to iPod/PSP


Videora iPod Converter
FIND OUT AT CRUCIAL.COM/UK
crucial
Start Converting
You can change the name of the video by editing
text box (1). Finally, click the "Start Converting
start the conversion process (2).
You will then be taken to the "Current Conversio
which shows the progress of your conversion.
1
3

Tools such as Vixy.net will convert .flv files directly to a format an iPod can read, such as MPEG-4. Other tools will tweak settings to improve how a file plays on an iPod. Let's take a look at Videora (www.videora.com/en-us/Converter/iPod).


Video Settings
Video Format: Old / New
Video Size: iPod / TV
Video Quality: Basic / Medium / High / Best
Enhance Quality: Off / On
Audio Quality: Basic / Medium / High / Best
Next
Conversion Speed: Slow / Fast
Overall Video Quality: Low / High
Estimated File Size: Unable to Predict

The wizard in the latest version of Videora has a basic slidebar that makes conversions easier to handle. Select the quality you'd prefer (video and audio), the file size, and how quickly you want the file converted. Make the changes and click Next.



For the best results, tweak your settings. You can generate a profile for whatever device you use, be it an iPod, PSP or other portable video player. Screen sizes vary a lot, so tweak the file types and resolutions, and then save them.

SOAR ABOVE THE ORDINARY

Far beyond their great looks, our new **Pro Flight Rudder Pedals** and **Aviator** joystick deliver everything you need for greater control over your aircraft no matter what the conditions. Strong, solid, reliable and fully adjustable our pedals will make your journey as comfortable as can be with total precision as you navigate the skies. And with our **Aviator** joystick in hand, there really is no limit to where you can go. With countless features, functions and on-board luxuries you're bound to find yourself on cloud nine in no time. So take off to your nearest retailer and have a great flight!

AV8R-01
OFF
A
B
T1
T2
T3
T4
T5
T6
T7
T8

[AVIATOR]

- Dual independent throttle controls with interlock
- Realistic design trigger
- 8-way POV hat
- Fully programmable with over 24 commands

[PRO FLIGHT RUDDER PEDALS]

- Precision rudder axis control.
- Adjustable pedals with integrated toe brakes.
- Adjustable resistance for realistic feel.
- Strong, stable base.

X52

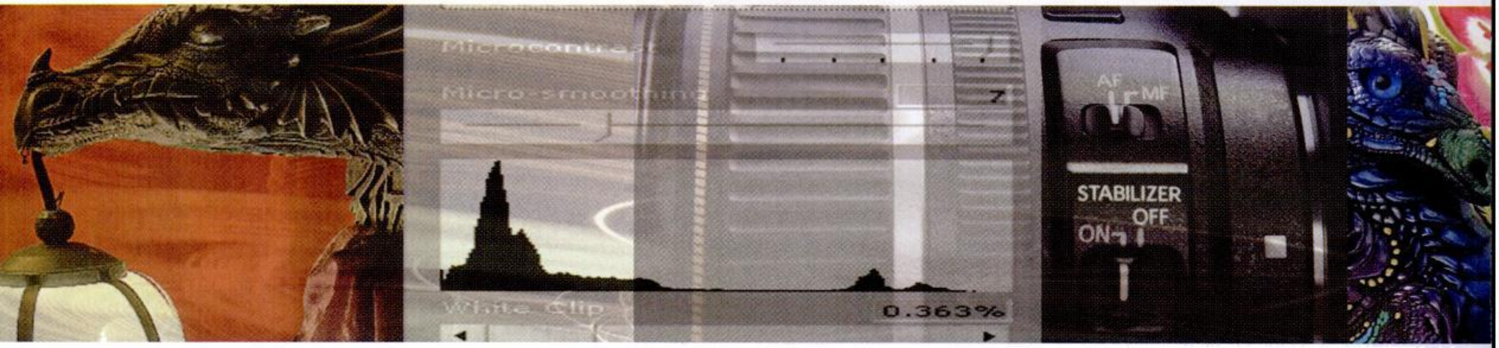
ECLIPSE II

PC GAMING MOUSE

Saitek™

www.saitekusa.com

Copyrighted material



Expose the Details with HDR Photography

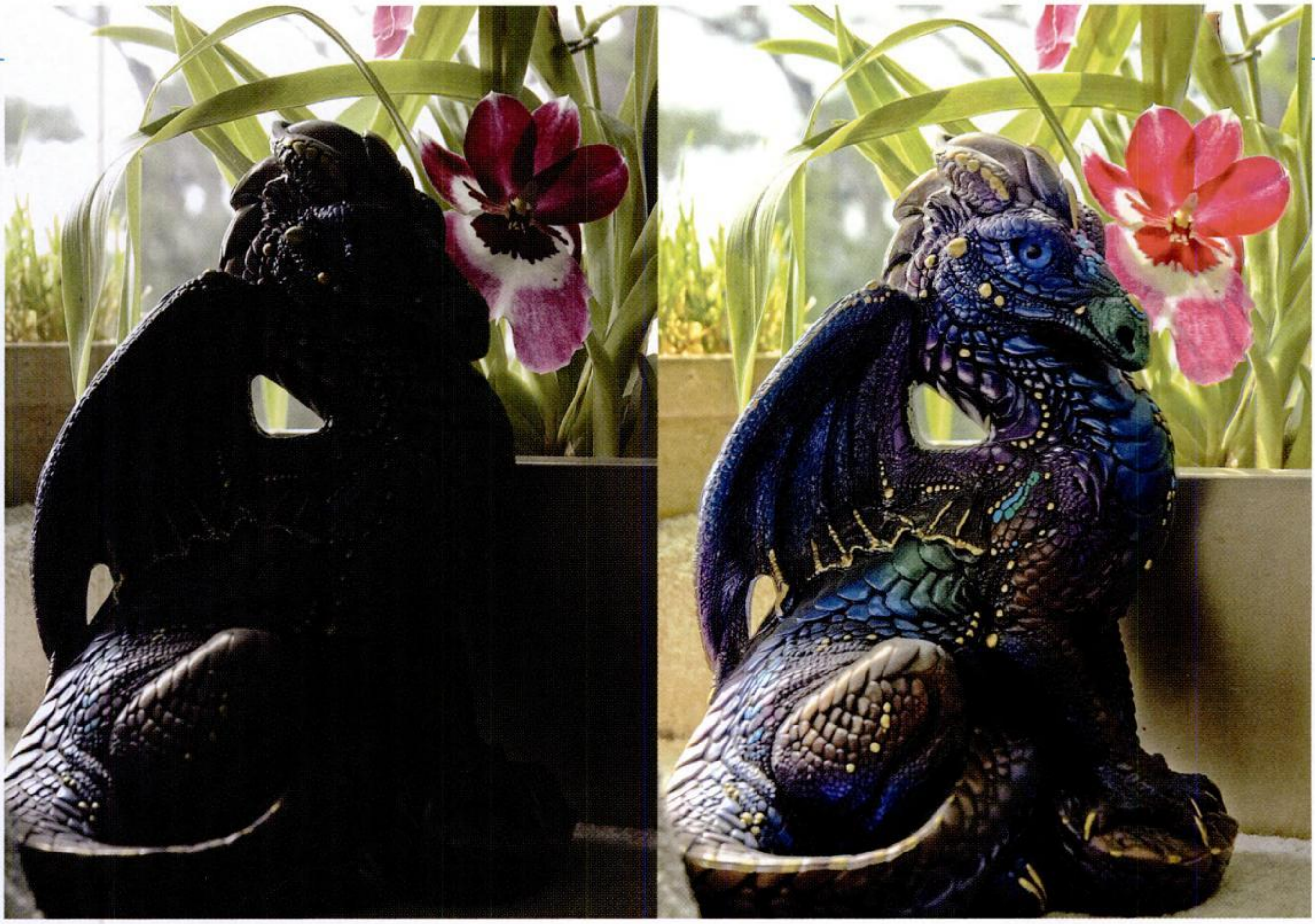
If you hate playing the ping-pong exposure game with your digital camera, learn to create images with a high dynamic range

The tabloids do an unbelievable job of exposing every detail of their target subject's image—too bad digital cameras can't do the same. Under various lighting conditions, digital cameras tend to expose their limitations when it comes to *dynamic range*—the scope of an image's shadow to highlight detail. Therefore, that sunny blue sky in your photo may look nice, but your intended Elvis-inhaling-a-Krispy-Kreme masterpiece is nothing but a silhouette—try exposing him in Photoshop and your sky turns into a white, overblown mess. Thankfully, you can do something to attain maximum exposure without turning to B-list celebrity antics. It's called high dynamic range (HDR) photography.

BY KRIS **FONG**

WHAT YOU NEED

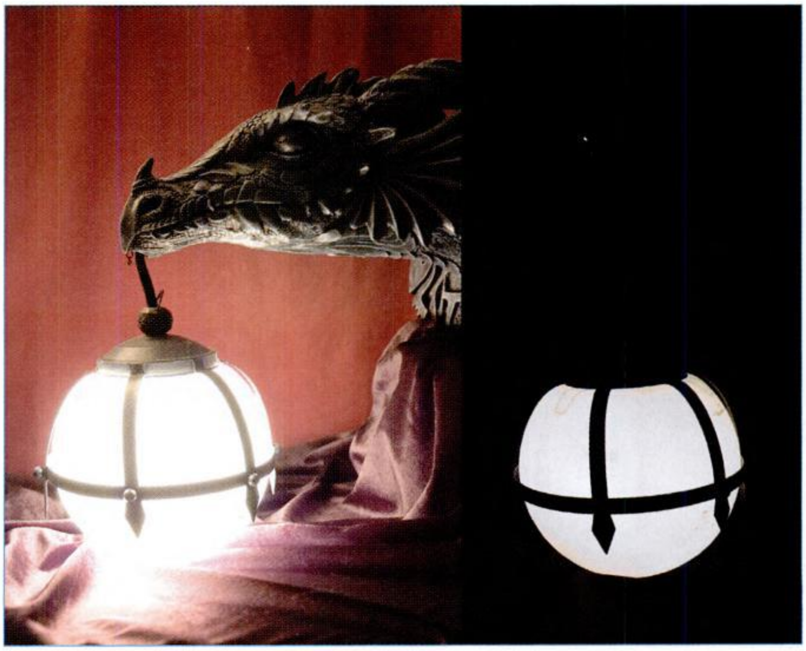
- **DIGITAL SLR OR POINT-AND-SHOOT CAMERA WITH MANUAL CONTROLS**
- **TRIPOD**
- **ADOBE PHOTOSHOP CS2** (or later version) $650, www.adobe.com
  or
  HDRSOFT PHOTOMATIX PRO $100, www.hdrsoft.com
  (Download a trial if you don't have either app)



Tired of getting pics like this from your digital camera (left)? Employ HDR photography principles and expose every precious detail (right).

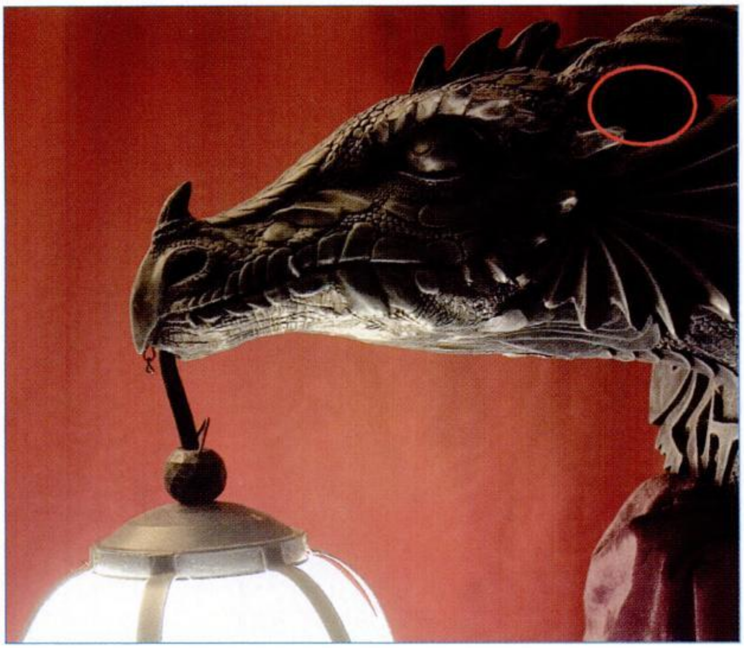
1 Define Your Composition

Take your camera, tripod, and butt to a favorite location that offers a good amount of shadows and bright areas, so you can truly see the merits of this technique. We recommend a dimly lit room with sunlight streaming through a window or a favorite spot to watch the sunset. Mount your camera on the tripod, set your camera's metering mode to spot metering (the icon looks like this: [•]), set the camera to capture RAW or TIFF images, set the ISO to the lowest setting (to avoid noise), and set your preferred white balance—don't use auto modes or flash. Then determine how you want to compose your frame, switch your camera to Aperture Priority mode, and set an aperture to complement your subject.



Our composition features high contrast, and this is how our camera captured it to properly expose the dragon and then optimally expose the lamp.

2 Gauge the Brightness

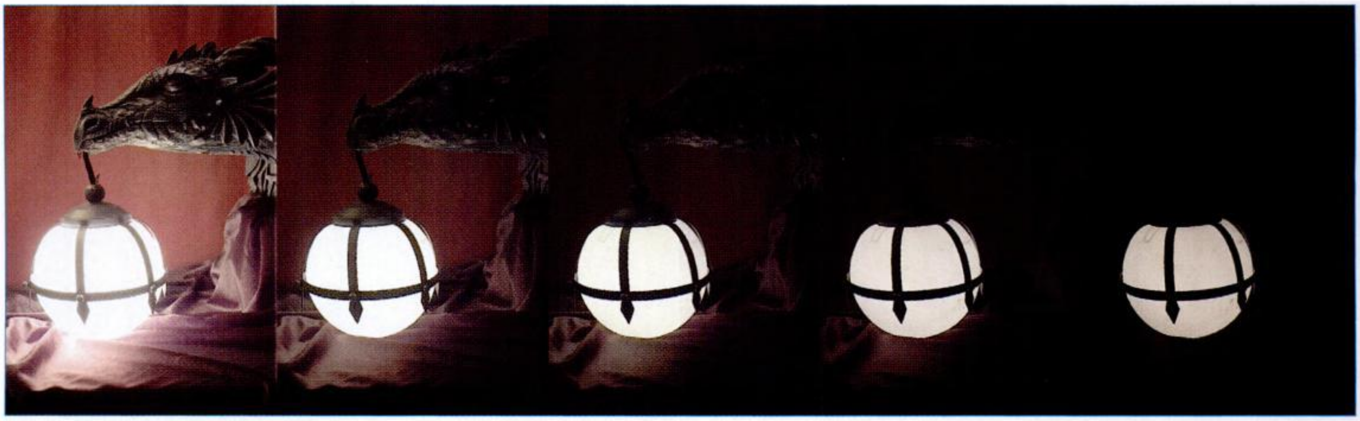


To determine the proper shutter speed to expose our darkest details, we spot-metered the area behind the dragon's ear.

To ensure that you capture your composition's entire brightness range, you need to shoot a series of images that properly exposes its darkest and brightest elements. To gauge the darkest parts of your composition, use your camera to spot meter the darkest element—something with detail—not an area that's solid black. Focus on the area and press the shutter down halfway; your camera should display the shutter speed required for proper exposure—jot this down. For example, our camera indicated a 1/2-second shutter speed to properly expose the area behind the dragon's ear. Do the same for the brightest detailed element—not an area of total white—and jot down the displayed shutter speed; in our example, the lamp's surface requires a 1/750-second shutter speed.

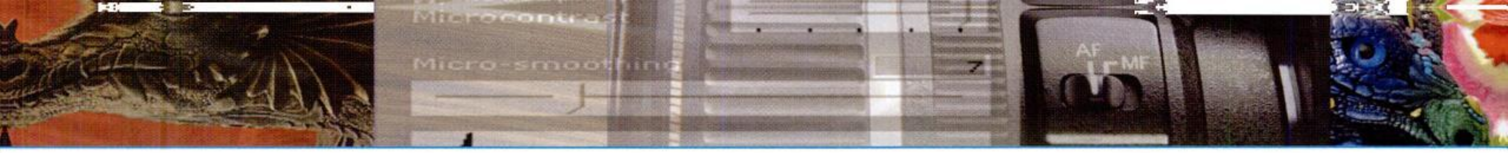
Now calculate three additional shutter speeds between the two so that each is set equally apart for a total of five shutter speeds. In our example, we calculated our five shutter speeds to be 1/2, 1/189, 1/376, 1/563, and 1/750. Round to the nearest shutter speed if values fall between your camera's set speeds.

3 Go Snap Happy

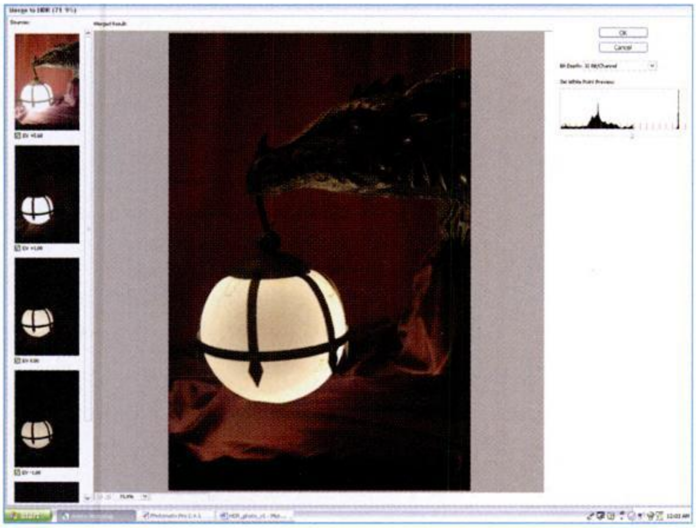


Our five-shot series shows a range of detail at opposing ends—from some dust on the dragon's fins down to the dirty details on the surface of the lamp.

OK, let's shoot. Make sure that your camera and tripod are steady, set your camera to its Manual mode, check that your aperture setting is still the same, and set the shutter speed to the slowest speed you jotted down. Then frame your composition and snap your first shot. Without moving the camera, reset the shutter speed with the second-slowest speed and shoot again. Repeat this process with the remaining three shutter speeds, taking care not to move the camera. When you're finished, review the five images in your camera—you should see a gradual progression of exposures without any frame movement. If you detect movement, shoot again.



4 Create an HDR Image



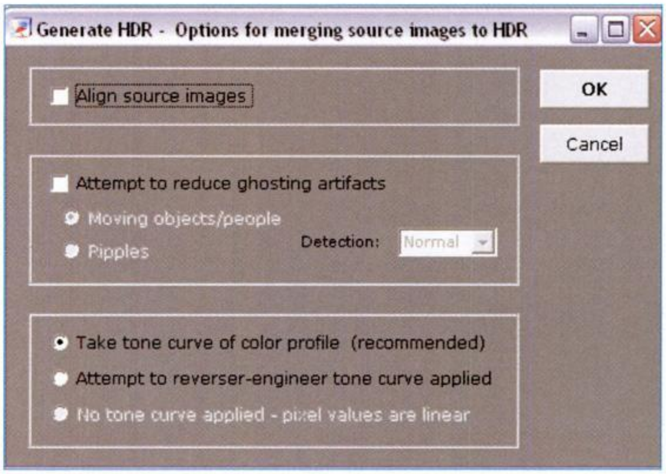
Download your images to your computer and then follow the instructions below for the app you have at hand to create an HDR image.

Photoshop Users—Choose File > Automate > Merge to HDR. In the resulting dialog, choose Files from the Use drop-down menu and then click Browse. Navigate to and select your five images in the resulting dialog, click Open, click OK to have Photoshop work its magic, and then click OK to confirm. To save your new 32-bit image, choose File > Save and then choose an HDR format from the Format drop-down menu, such as the standard Radiance HDR (.hdr) format or Industrial Light & Magic's OpenEXR (.exr) format, which is widely used in the CG and animation industry. Then click Save.

Photoshop's easy-to-use HDR merge feature quickly turned our five shots into a detail-enriched HDR image. You just can't see all of the details—yet.

Photomatix Users—Choose HDR > Generate. In the resulting dialog, select the "Load differently exposed images" option and then click Browse. Navigate to and select your five images in the resulting dialog, click Open, and then click OK. In the resulting dialog, Photomatix provides options to help improve your image; select the ones you want, then click OK to have the app blend everything together. To save your new 32-bit image, choose File > Save As and then choose an HDR format from the "Save as type" drop-down menu, such as the standard Radiance HDR (.hdr) format or Industrial Light & Magic's OpenEXR (.exr) format. Then click Save.

Photomatix Pro features options to improve your HDR image, including a function that can align your images to help eliminate camera shake.



Generate HDR - Options for merging source images to HDR

☐ Align source images

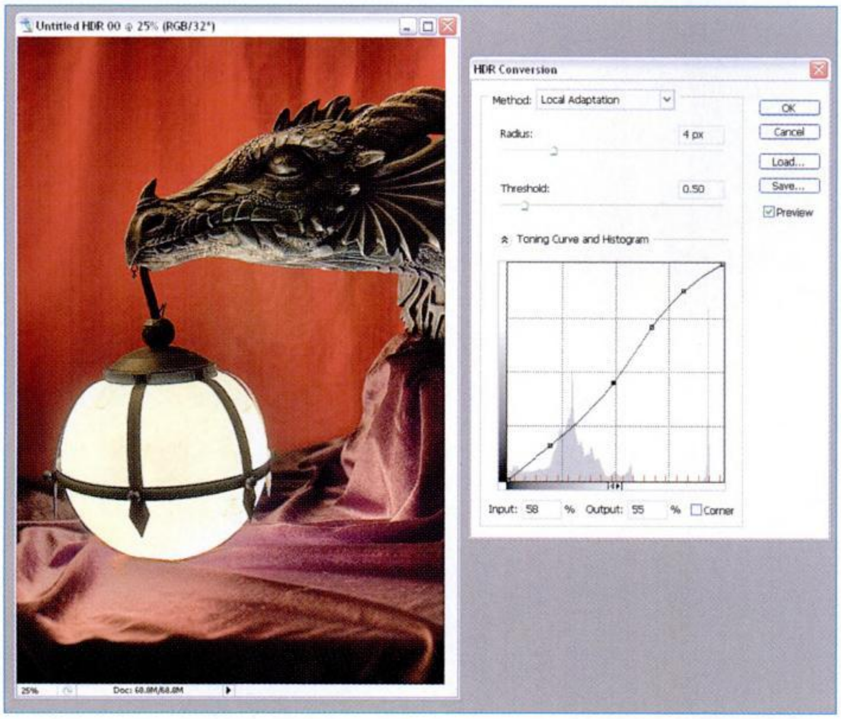
☐ Attempt to reduce ghosting artifacts
○ Moving objects/people
○ Ripples
Detection: Normal

● Take tone curve of color profile (recommended)
○ Attempt to reverser-engineer tone curve applied
○ No tone curve applied - pixel values are linear

5 Bring out the Details

All right, you're probably wondering, "What the f***? Why does my photo look so crappy? High dynamic resolution my ass!" Don't worry, all of the exposure information is there—your computer screen just can't display all the info due to its low dynamic range of brightness. To make your photo fit for public consumption, you need to down-convert your 32-bit HDR image into an 8- or 16-bit image for proper display and editing. In the HDR world, this is called tone mapping.

Photoshop Users—Choose Image > Mode > 16 Bits/Channel to open the HDR Conversion dialog. From the Method drop-down, choose Local Adaptation. You should see your image's brightness change dramatically. Click the "Toning Curve and Histogram" reveal button and then use the Toning Curve (along with the Radius and Threshold sliders) to fine-tune the exposure. Just click on the diagonal line (Toning Curve) to plot a point and then drag it around to see how your changes affect your image. Plot several points and shape the curve initially so that it complements the shape of the histogram (the mountain-looking graphic). Then fine-tune the curve so that your image displays an optimal amount of contrast while retaining a high degree of detail throughout. Be careful that you don't inadvertently wash out your image (low contrast) as you bring out its details. Play around until you're satisfied with the image's appearance and then click OK. Save your result as a TIFF image and then tweak it to perfection.


Untitled HDR 00 @ 25% (RGB/32*)

HDR Conversion

Method: Local Adaptation

Radius: 4 px

Threshold: 0.50

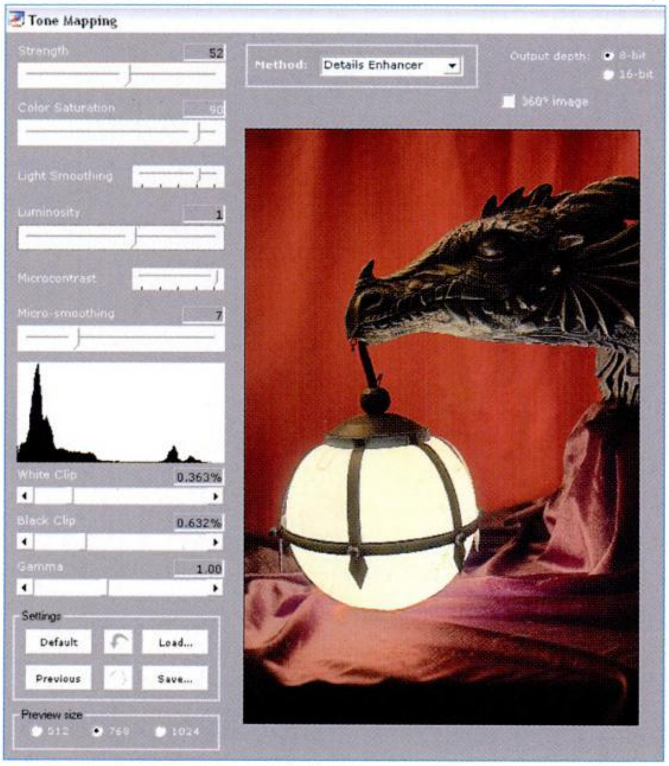
Toning Curve and Histogram

Input: 58 % Output: 55 % ☐ Corner

☑ Preview

Photoshop's Toning Curve tool works like the Curves tool to fine-tune different levels of exposure in your image.

Photomatix Users—Choose HDR > Tone Mapping to open the Tone Mapping window, which offers a variety of contrast, color, brilliance, level, and other controls. The idea is to balance your image so that it displays an optimal amount of contrast while retaining a high degree of detail throughout. If your image needs a good amount of exposure tweaking, choose Tone Compressor from the Method drop-down menu and use the controls to tweak the brightness, contrast, and levels in your image. For fine-tuning, choose Details Enhancer from the Method drop-down menu and use the sliders to enhance the contrast, color saturation, luminosity, levels, and more. When satisfied, select either 8-bit or 16-bit under Output Depth and click OK. Save your result as a TIFF image, which you can then tweak to perfection using an image editor. **MPC**


Tone Mapping

Strength 52

Color Saturation 90

Light Smoothing

Luminosity 1

Microcontrast

Micro-smoothing 7

White Clip 0.363%

Black Clip 0.632%

Gamma 1.00

Method: Details Enhancer

Output depth: ● 8-bit ○ 16-bit

☐ 360° image

Preview size: ○ 512 ● 768 ○ 1024

Photomatix's Tone Mapping window features a few controls to fine-tune your image.

SHOOTING SHORTCUTS

If you don't have manual controls on your camera or are feeling lazy, here are a few shortcuts to get the requisite photo exposures.

- Instead of measuring and calculating exposures, set your camera to Auto Bracket mode with a 1 EV difference between exposures (such as -2, -1, 0, +1, +2) and snap a five-frame burst. This is also a good way to capture multiple exposures of a composition that contains potential movement (such as the ocean or people).

- Don't have manual controls? Shoot your composition in program mode at 0 EV; next, alter the exposure compensation up and then down the EV scale to get the other shots.

- Instead of five shots, aim for the middle shutter speed between your two measured speeds and shoot just three images.

- Forgo measurements and calculations altogether and shoot in Aperture Priority mode with matrix metering, using exposure compensation in 1 EV increments instead of shutter speeds.

www.fileradar.net

fileradar.

▸▸ This is the brand new, premier, next-gen game links site, built for the community by the community. FileRadar puts the true power of game file distribution into your hands.

There are millions of sites to download from, and only FileRadar umbrellas them all while empowering you to tell each other not only which are the best files to get, but what are the fastest and easiest places to get them from.

With user feedback and link ratings, you save loads of time, grief, and money, since FileRadar is free to use and update.

DEMOS

MODS

PATCHES

ith a thriving community of informed gamers etworked together to be the first to either laytest a hot new game or enhance the games ou already love, how can you go wrong?

▸▸ You can't, and neither can FileRadar.

▸▸ You now wield this power.

▸▸ Use it. Wisely.

. GAME LINKS . EVOLVED

Copyrighted material

The marketing buzz about Vista is out there, and by golly, the final release is now on the shelves for you to buy (or not). However, we know from experience that beta testing—and the final flurry of programming changes—can't possibly find and fix *all* the quirks, issues, and bugs in software as complex as the Vista operating system.

Indeed, I reported some issues during my beta testing, and noted more as I prepared this article using the final retail release of the OS. Indubitably, many remain to be found over time, and I'll be recording (and posting workarounds for) them on my web site. In these respects, Vista is no different from XP.

Some of Vista's minor digital-media "quirks" include *Photo Gallery* and *Movie Maker* displaying different dates and times for video clips—one being the date the clips were imported to the computer and the other being the time the scene was recorded on the camcorder.

The most severe issue I ran into was that I had to press the computer's on/off switch for a total system reboot after other methods failed to close a "hung" *Movie Maker* session. Many events of this sort are triggered by the user—I started a narration without having a microphone plugged in. It's been a long time since I've been unable to close an app without taking such drastic action.

The marketing material tells us how things are expected to work. The rest of the story—the even more exciting thing for me—are the user experiences that will roll out after Vista.

Writing this article helped me look into many nooks and crannies of the final release of Vista that I hadn't explored during beta testing. I was surprised by how impressed I was with the movie-making processes. Note that I don't refer to *Movie Maker* itself when I say that: The experiences of Vista seem less about an app or feature, and more about how well the parts work together to make it easier for you to make a movie…or perhaps I should say "make a DVD."

This article is based on a clean install of the Ultimate Edition of the Vista operating system. I'll start by summarizing the main short-comings of *Movie Maker* in XP, and then see if they've been resolved in Vista. I'll then illustrate Vista's movie-making processes.

BY JOHN "PAPAJOHN" BUECHLER

"PapaJohn" is an acknowledged *Windows Movie Maker* and *Photo Story* expert. He has received Microsoft MVP (Most Valuable Professional) awards for each of the past five years, written books about *Movie Maker*, and contributed articles to *Maximum PC* about *Windows Movie Maker* and *Photo Story*.

He beta-tested Vista extensively and is now running the final release of the Ultimate Edition. In this article he notes the main short-comings of XP's *Movie Maker 2*, and determines if they've been resolved in Vista. He then illustrates Vista's movie-making process.

PapaJohn's website (**www.papajohn.org**) has been expanded to cover Vista's movie-making capabilities. Each of the site's Vista-related pages has a "Tips" section at the bottom, and he's continually updating this advice as he explores and learns more about Vista's digital capabilities.

Movie Maker's XP PITFALLS

Movie Maker's main attraction was that it was free—it came bundled with the XP operating system. It could be used adroitly to create some fairly sophisticated movies, but it fell short of more robust third-party apps in key areas:

- Version 2.0 crashed and hung too often. It doesn't matter to a user what

MAKING MOVIES WITH VISTA!

Think you know Movie Maker? Think again. The version in Microsoft's newest OS offers all-new ways to work with video.

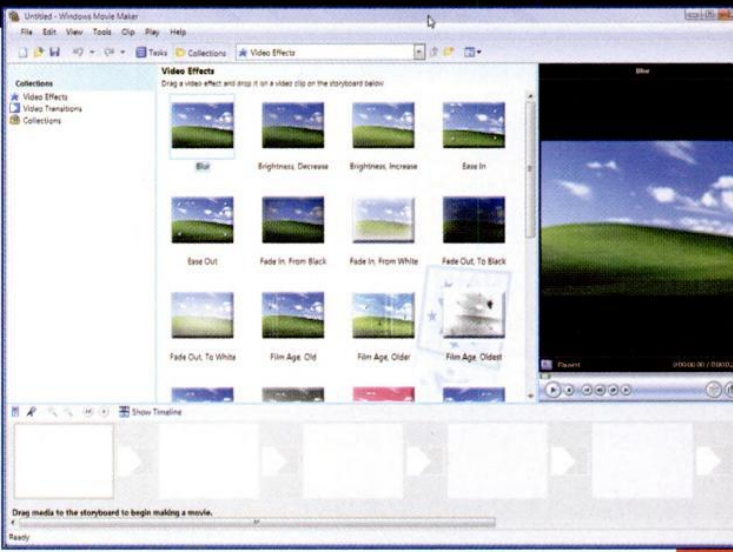
clashes with what to cause it: It's difficult and beyond the skills of most users to resolve issues related to codecs or Direct Show filters.

Movie Maker 2.1 introduced a "compatibility" tab to make it easier to resolve codec issues, but Microsoft said a DirectShow filter issue was due to a bug in the DirectShow component that caches the information about effects and transitions. The company provided some guidance about how to work around the bug.

> Files such as recorded TV programs and those on DVDs couldn't be used without a good MPEG-2 codec that worked with *Movie Maker*, and Microsoft didn't provide one or suggest which one to get. It encouraged users to try the many available options, but reports of success were few and far between.

The user community found it easier to convert MPEG-2 files to ones that would work in *Movie Maker* projects. But conversions require other software and a working knowledge of codecs that only techies and geeks understand, not the casual home-video enthusiasts for whom the app was made.

> When *Movie Maker 2.0* added features to use special transitions, effects, and titles, it was enthusiastically received. But using them made projects more complex, and saving movies needed more computer memory. The extra memory wasn't always available, and there's no meter to gauge how much a project needs. If the needed extra space is small, closing other running apps *might* free up enough.


Untitled - Windows Movie Maker
File
Edit
View
Tools
Clip
Play
Help
Tasks
Collections
Video Effects
Collections
Video Effects
Video Transitions
Collections
Video Effects
Drag a video effect and drop it on a video clip on the storyboard below
Blur
Brightness, Decrease
Brightness, Increase
Ease In
Ease Out
Fade In, From Black
Fade In, From White
Fade Out, To Black
Fade Out, To White
Film Age, Old
Film Age, Older
Film Age, Oldest
Blur
Paused
Show Timeline
Ready

Drag media to the storyboard to begin making a movie.

It's hard to knock an app that's free, but XP's *Movie Maker has* been criticized quite a bit.

Adding more RAM or virtual memory often helped, but a 2GB memory limit seems to be a programmed limit, and the only way past it is to subdivide the project and render the movie in parts—another task beyond the scope of typical people.

> *Movie Maker*'s option to save a movie to a CD made users think DVD players would accept them, but they wouldn't. Existing players that supported the HighMat menu structure on the disc were limited to audio and picture files. For a long time Microsoft and its partners led users to believe new DVD players with the added feature were coming out.

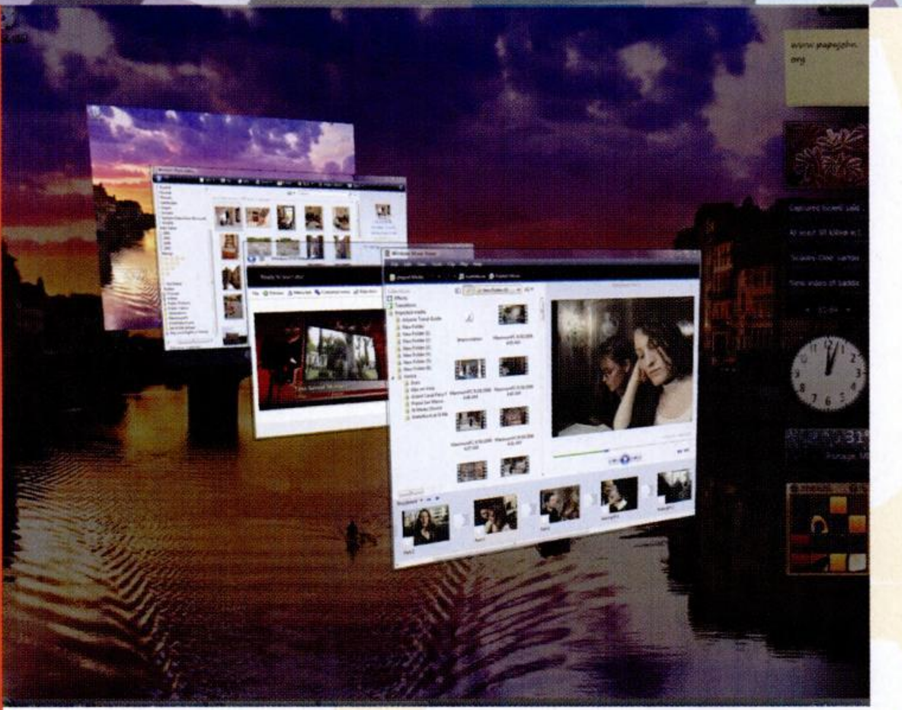
These players never appeared. To get their movies to standard VCDs, SVCDs, or DVDs, people had to continue taking their saved movies to other disc-making software.

These shortfalls are still in the latest XP version of *Movie Maker*. Let's see if they've been addressed with Vista's release.

Continued on page 80

MAKING MOVIES WITH VISTA!

Continued from page 81



READY, SET, VISTA!

There's more to "making movies with Vista" than the *Movie Maker* program. Think of it more as a movie-making process that uses coordinated programs and wizards. As we see above, Vista offers lots of eye-candy at first glance.

What works and how it works depends on which version of Vista you have. The Home Premium and Ultimate versions include *Windows Movie Maker HD* (high-definition) and *Windows DVD Maker*. The Home Basic, Business, and Enterprise versions lack these tools. To enjoy Vista's new movie-making fruit, you'll need one of the first two versions.

If you've at all been into making movies with *MM* in the past, here's why you need a version of Vista with *MM HD* going forward:

- Changes to the Direct Show component in Vista should resolve any associated *Movie Maker* startup crashes for all users—it did for me. But the compatibility tab added by *MM 2.1* is still there, a clue that it's still needed to resolve codec-related issues, although I've not experienced any as of yet.

- *Movie Maker HD* in Vista's Home Premium and Ultimate versions can use DVD and recorded TV files in movie projects without having to go through conversions. The versions of Vista **without** *DVD Maker* won't have the new Microsoft MPEG-2 codec. People can either try again with a third-party MPEG-2 codec that works with *Movie Maker*, or continue doing the file conversions they do in XP.

- Under the hood" memory management is significantly enhanced for all versions. Movie projects that won't save in XP because they are too complex should do so easily in Vista. Those with the Home Premium and Ultimate versions can skip the rendering entirely, as *DVD Maker* accepts *Movie Maker* project files in addition to finished movies.

- Got HDTV? As stated above, the Home Premium and Ultimate versions have the new *Windows DVD Maker* program with the Microsoft MPEG-2 codec, **and** the capability to use and make HD (high-definition) videos.

So, if you're already into making home movies in XP, you'll want a version of Vista that has *DVD Maker*. If you're not yet making home movies and you get a version of Vista that *doesn't* include it, you'll be able to purchase an upgrade when you're ready.

WE'RE OFF TO SEE THE WIZARDS!

We'll now introduce the programs and wizards in Vista that are involved in making movies, and take you through a scenario in which we make a movie from camcorder tape to DVD, to illustrate why we think of it as a movie-making process rather than a *Movie Maker* app.

The key apps in Vista for preparing clips and making movies are:

- **Import Video Wizard** – to get camcorder footage into your Photo Gallery library, or to go directly from a camcorder tape to a burned DVD.

- **Windows Media Center** on Home Premium and Ultimate versions – to view libraries of still pictures, imported video clips, recorded TV, and music.

- **Windows Media Player (WMP) –** to listen to music, watch recorded TV shows, view video clips or DVDs, sync with portable media players, and burn audio discs or data CDs and DVDs.

- **Windows Photo Gallery –** to view and organize libraries of still pictures and video clips... with features to "fix" still pictures. To "fix" video clips, you'll need to continue using other software for anything beyond what you were able to do with XP's *Movie Maker*.

- **Windows Movie Maker –** to make movies as you do in the Windows XP version of the program. There are some enhanced features, such as full-quality project previews, seeing *each* frame during editing rather then every other one, and enhanced memory management when saving movies.

- **Windows Movie Maker (HD)** on Home Premium and Ultimate versions – to extend the basic app to high-definition movies.

- **Windows DVD Maker** on Home Premium and Ultimate versions – to author and burn standard DVDs, and to use the included MPEG-2 codec for easy use of DVD and recorded TV files.

- **AutoPlay Wizard –** to quickly and easily pass you to the right place to make data or video DVDs on Home Premium and Ultimate versions.

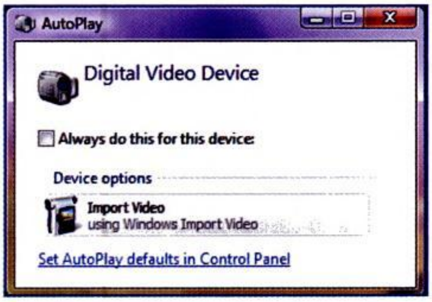
Photo Story wasn't included in XP (it's available via a free download), and it's not in Vista. The app runs well on Vista and will continue to be a key one in the movie-making toolboxes of people applying Ken Burns–style pans and zooms to high-quality still pictures. Vista's *Photo Gallery* app

will help edit pictures before adding them to a story project. Exposure, color adjustment, and the cropping feature provide user controls beyond the more basic ones included in *Photo Story*.

Let's Make a Movie!

Now let's go through a 15-step movie-creation scenario in which we transfer footage from a camcorder tape to a video DVD, using nothing more than the software included in Vista's Home Premium and Ultimate versions. You'll see the interactive wizardry and team-playing features of the apps in Vista, which are much-welcome enhancements from XP.

FROM CAMCORDER TAPE TO VIDEO DVD...



AutoPlay

Digital Video Device

☐ Always do this for this device:

Device options

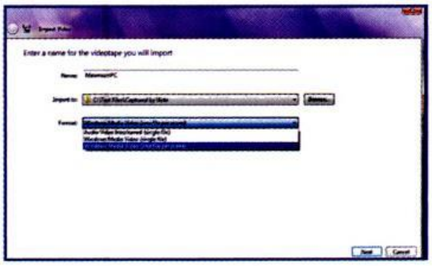
Import Video
using Windows Import Video

Set AutoPlay defaults in Control Panel

STEP 1: Get Connected

Connect your mini-DV, digital8, or HD digital camcorder to the computer with a FireWire cable. Make sure no apps are open, and turn the switch to the VCR mode.

The **AutoPlay Wizard** gives you one choice: Import Video using the Import Video Wizard.



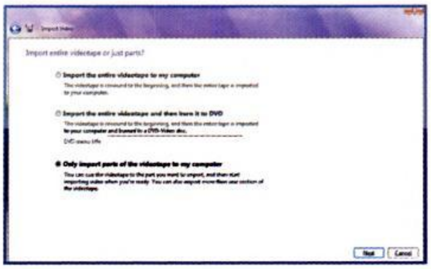
Enter a name for the videotape you will import

STEP 2: Name the File

Give your project a name, select a working folder, and choose a format, as we do in Figure 3.

The first choice of format is the standard DV-AVI file, which eats up about 13GB of drive space per hour of video. The other two choices give you high-quality WMV files at about 2GB per hour—one option is a single file, while the other is one file per camcorder scene.

We'll go with the last option for individual files.



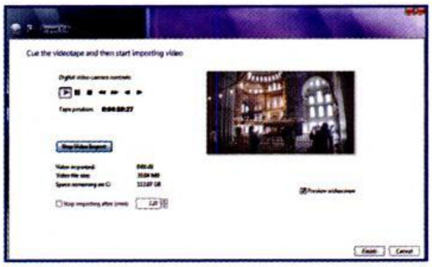
Import entire videotape or just parts?

STEP 3: Get Ready to Transfer

You can elect to slap the contents of the entire tape on the hard drive, and then take the shortcut and put all the raw footage on a DVD as quickly as possible. Or you can select only the parts of the tape you want.

We'll go with last option—"only import parts"— as we know the scenes we want to use are toward the end of the tape.

The option to go straight from tape to DVD is interesting. The wizards keep you watching as *Movie Maker* and *DVD Maker* are both skipped as apps. They work behind-the-scenes and make the choices for you. This is a nice means of archiving footage you may want to return to edit at a later date.



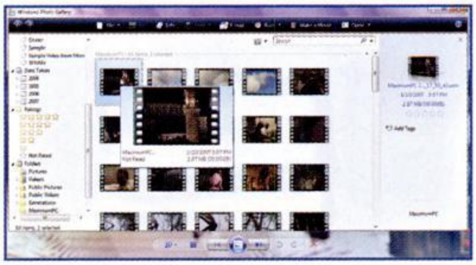
Cue the videotape and then start importing video

STEP 4: Import Your Video

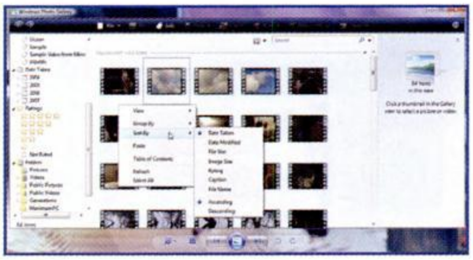
Now we hit the play button to cue the videotape and begin importing the footage from our trip to Istanbul this past summer. As you preview the process, you can stop and start the video as needed. When the scenes you want have passed, hit the Finish button. The Import Wizard will complete the file(s), close, and open **Photo Gallery**, where you'll see the newly captured clips in your library of pictures and video.

STEP 5: Review the Clips

The Import Wizard drops you off at the folder in the *Photo Gallery* app. If it's a new folder, it'll have only the new clips. If it's been used before, as the example above



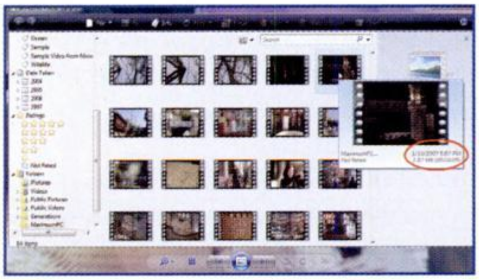
shows, the new clips will be mixed with those previously imported. At least it's not a random place in your vast multimedia library, or the last place you were at when you closed the *Gallery*, which was the case with XP.



STEP 6: Re-sort the Clips As Needed

To see the new clips in sequence in the folder, right-click in the folder space and then sort by Date Taken and Ascending order, which we do above.

It would seem that Date Taken would be derived from the tape's time code, but it's not. In the *Gallery* the displayed time info highlights the date and time the video was imported, not when it was taken. Later on in *Movie Maker* this property will be the date from the tape's time code. This was the first clue that the teamwork of Vista's apps and wizards isn't quite perfect.



Regardless of the date/time logic, the re-sorting arranged the clips properly from first to last.

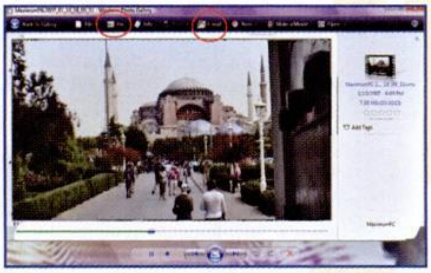
Continued on page 84

Continued from page 83

STEP 7: Preview and Fix

If you listen to music while you work, XP systems have an annoying habit in which *Windows Media Player* stops the music every time you open a video clip, and doesn't return to the music when you finish. It's enough to drive you to listen to *iTunes* while you view video clips.

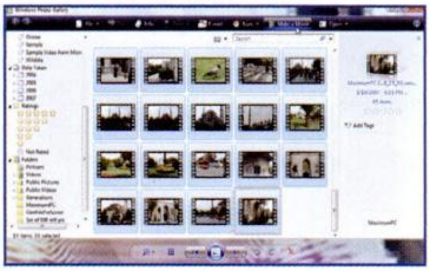
Vista resolves this gaff by adding a video viewer to *Photo Gallery*. Below, we show a clip being previewed while music in *WMP* continues. You can now satisfy your urge to listen to music while you sort and prep your video clips.



The easiest and often best way to resolve a bad clip is to delete it. If you don't have a good alternate, or if it's one really worth keeping but in need of serious fixing, take it to your favorite third-party video-editing utilities. *Photo Gallery* cutely offers the un-grayed "Fix" option in the menu, but selecting it produces a note saying "Video Files can't be edited using Photo Gallery." Yup, they can't be printed either, which is why that option is grayed out. The Fix option is functional for still pictures; are we seeing a clue that someday it'll be also functional for a video clip? Hopefully...but don't hold your breath!

Also note the menu option to email the clip. Vista will automatically fill in an email and attach the clip. If it happens to be a 2GB or 96MB video clip, that's what it'll attach. Know your email limits and be careful: the feature will downsize still pictures but not video clips.

STEP 8: Select Clips for a Movie

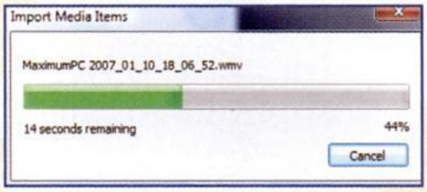


When you finish previewing, fixing, and discarding, select only the clips you want to use in a movie. It's sounds easy, and it is.

Sixty-five video clips were added to the *Gallery* folder from this capture session. Select them all at once and press the menu's "Make a Movie" option. That'll take you on another Wizardry ride. Hold on!

STEP 9: From Gallery to Movie Maker

Photo Gallery opens *Movie Maker* and the 65 clips go into a new collection.



Import Media Items

MaximumPC 2007_01_10_18_06_52.wmv

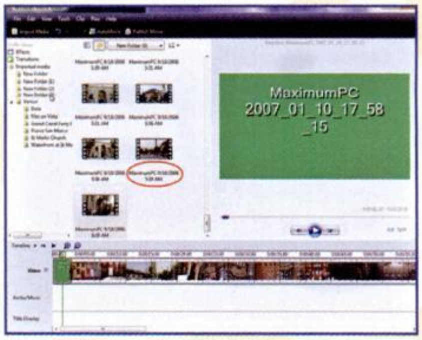
14 seconds remaining

44%

That's right: There are no more separate collections for each clip, as in XP! This change was made in response to requests from the user community. (Good job!)

STEP 10: From Collection to Timeline

The flow of the clips doesn't stop with the collection. *Movie Maker HD*'s "AutoMovie" feature now kicks in and the clips are deposited in the timeline of a new project.



The project gets some finishing touches with an opening title clip with text, transitions between clips, and closing credits.

Note the clip names in the collection versus the names we saw in *Photo Gallery*. We're now seeing the actual date and time of the camcorder shots in Istanbul versus the date and time of the importing into Vista.

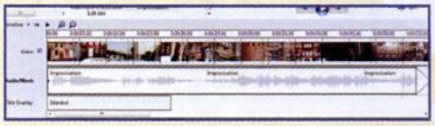
AutoMovie doesn't use all the footage of the selected clips: It analyzes them and drafts a movie project it thinks is good. You can accept its results or use them as your starting point.

STEP 11: Time to Do Some Editing

Now we're ready to drop clips that don't work and enhance what does. If you've used *Movie Maker* in XP, you'll find that Vista works the same way.

Double-click the title clip to open the editing feature. Change the title's font, the animation style, and the text. Drag it from the video track to the title overlay track so it appears over the first video clips. You can do this one little change in less than a minute and it'll really make you feel the movie taking shape. Do the same with the ending credits, and add your name as the director and producer.

Now, import music (if you wish) and drag it to the Audio/Music track.

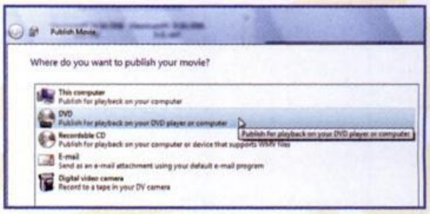


If you're eager to see the movie on a DVD, make one now. It's best to check the process at this point before spending endless hours editing.

STEP 12: To DVD We Go!

If you've used *Movie Maker* in XP, you've learned to save or render a movie to your hard drive as a DV-AVI or high-quality WMV file, and then wait seemingly forever for it to finish. You're in for a thrill in Vista: You don't need to render the movies from the project files! Add a movie project file to *DVD Maker* and it'll go right from these source files to the MPEG-2 files needed for the DVD. Whoop!

Select the DVD option from the publish menu, which is shown below.



Publish Movie

Where do you want to publish your movie?

This computer
Publish for playback on your computer

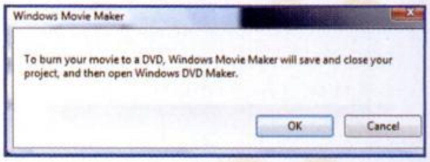
DVD
Publish for playback on your DVD player or computer

Recordable CD
Publish for playback on your computer or device that supports WMV files

E-mail
Send as an e-mail attachment using your default e-mail program

Digital video camera
Record to a tape in your DV camera

It's now time to change your XP *Movie Maker* habits: don't walk away or go to bed for the night. The screen below shows the note you'll get from *Movie Maker*.



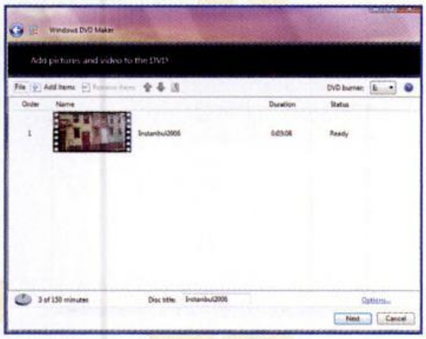
Windows Movie Maker

To burn your movie to a DVD, Windows Movie Maker will save and close your project, and then open Windows DVD Maker.

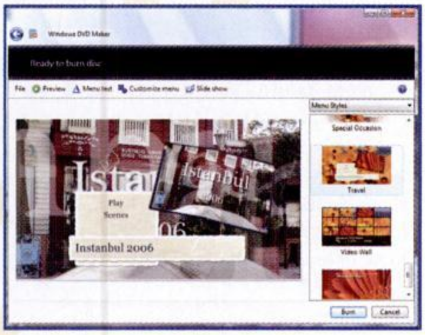
It'll do what it says! And most amazingly, it'll skip XP's slow rendering of the movie: In just a few seconds you'll be in *DVD Maker*, ready to move forward.

STEP 13: Author Your DVD

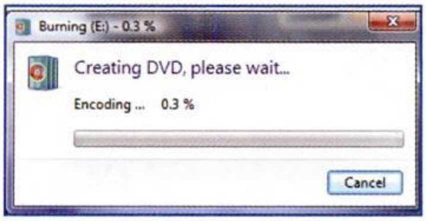
The next thing you'll see is the thumbnail of your movie in *DVD Maker.* If you wish, you can now add other items to the project, such as saved movies, a slideshow of still pictures, or other *Movie Maker* project files.


Windows DVD Maker
Add pictures and video to the DVD
File
Add items
DVD burner:
Order
Name
Duration
Status
1
Instanbul2006
Ready
Disc title:
Instanbul2006
Options...
Next
Cancel

Select a style, tweak the title, add a background-music file for the DVD menu, make a few other choices, and you're finished!


Windows DVD Maker
Ready to burn disc
File
Preview
Menu text
Customize menu
Slide show
Menu Styles
Special Occasion
Travel
Video Wall
Play
Scenes
Instanbul 2006
Burn
Cancel

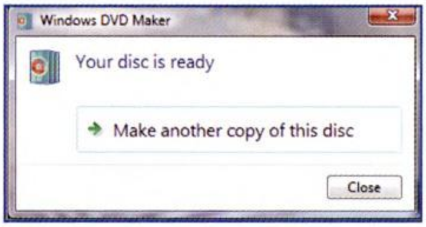
STEP 14: Burn the DVD!


Burning (E:) - 0.3 %

Creating DVD, please wait...

Encoding ... 0.3 %

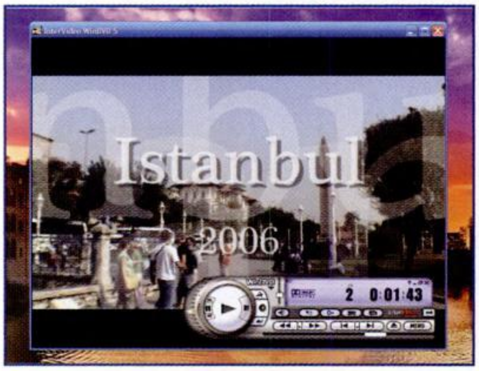
Press the Burn button. *DVD Maker* will use the *Movie Maker* project file you created for the spec for one movie, and the other files you added as additional clips that you can view via the DVD menu. It'll make the temporary files needed, burn the disc, and open the drive when it's ready for prime time.


Windows DVD Maker

Your disc is ready

Make another copy of this disc
Close

Use this option to burn additional copies for all your friends and family—after you've checked the first copy, naturally. When you have enough, close it and *DVD Maker* will clean up the temporary files.


Istanbul
2006
2 0:01:43

STEP 15: Grab a Bucket of Popcorn!

Time to enjoy the fruits of your labors—and then make another one!

If you see things you want to tweak before making final copies of your masterpiece, by all means go back and fix 'em! Vista makes it easy to return to the project file and make changes.

That's it! We're finished! Time to sit back and enjoy our new masterpiece! MPC

Director's Commentary

With lots of ways to make Vista's movie-making apps and wizards work with each other, it's going to be fun exploring the possibilities. Even if, on the surface, *Movie Maker* looks and works mostly the same as it does in XP, try the new tricks that Vista's wizards present. And take full advantage of *DVD Maker*'s ability to use the *Movie Maker* project files directly.

Beware of the most direct path from digital camcorder to video DVD—which bypasses *Movie Maker* and *DVD Maker*—as it has a couple potential pitfalls:

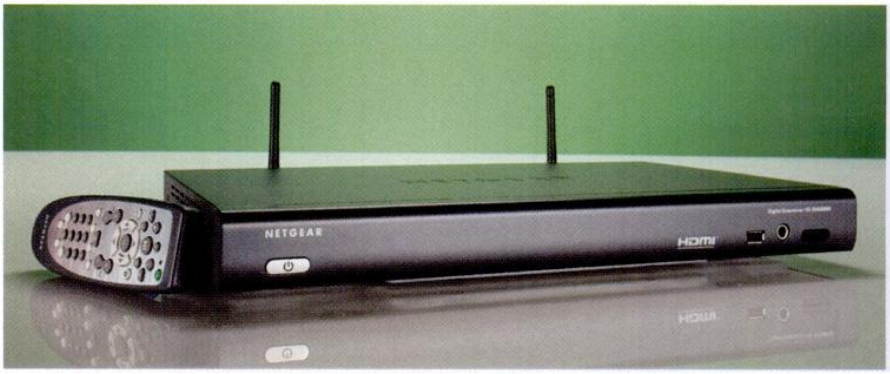
- If you want the whole tape on a disc but you opt for each scene being imported as a separate file, when the tally of clips reaches 99, you'll learn that a *DVD Maker* project has a maximum video file limit of 99.
- If your system makes good discs at slow speed but coasters when burning at the default fast speed, you can change the burn speed in *DVD Maker*'s settings when using it as an app. However, the wizard takes the fast-track runs with the fastest burn speed, and you don't have an option to change it

Stream Dreams

A/V streamers move up to 1080p

The A/V-streamer market has matured to a level where we're no longer willing to make allowances for missteps. Can either of these products stand up to that kind of scrutiny?

—MICHAEL BROWN



If you have more than one Netgear EVA8000 in the house, you can pause video playback on one, go to another room, and pick up where you left off.

MEDIAGATE MG-350HD

We found some innovative ideas inside the MediaGate MG-350HD, but this streamer's shortcomings far outweigh its assets.

Designing the shell to accommodate an optional 3.5-inch hard drive, for instance, is brilliant; ditto for including logic enabling it to operate as a USB 2.0 host. This means it can not only behave as a NAS box but also copy images off your digital camera without you having to first fire up your PC. But we're less enthused about having to do a reach-around to access the USB port, and the hard-drive interface is old-school IDE.

The MG-350HD is capable of streaming video at resolutions up to 1080p, but it's equipped with a DVI port, not HDMI. While it's no big deal to buy an adapter or a special cable to connect it to your TV or A/V receiver's HDMI port, you'll need separate cables to run audio.

It would be easy to overlook connector shortcomings if the device performed flawlessly, but the ugly user interface is so clumsy that it literally refers you to the user manual to figure out how to stream Internet radio. What's worse is that you won't *find* any such coverage in the nearly incomprehensible documentation.

We streamed standard-definition video over an 802.11g network without a hitch, but it should surprise no one that the player chokes on HD content unless it's hardwired to the network. The MG-350HD supports a variety of audio codecs, including MP3, OGG, WAV, and WMA, but the only way it can stream music during a photo slide show is if the music is stored on its local hard drive. Lame.

Add MediaGate's MG-350HD to the hordes of A/V streamers that look out of place in the typical consumer's entertainment rack.

MEDIAGATE MG-350HD

+ REEFER MADNESS

Accommodates an internal hard drive (not included); can act as a USB host.

− SHE GODS OF SHARK REEF

No HDMI, doesn't support FLAC; as configured, cannot stream photos and music simultaneously.

6

$250, www.mediagateusa.com

NETGEAR DIGITAL ENTERTAINER HD EVA8000

We like Netgear's EVA8000—a lot. Its industrial design fits in with the rest of our AV gear, its user interface is as elegant and polished as it is easy to use, it supports resolutions up to 1080p with an HDMI port, and that's just the beginning.

But if you buy one, make sure it has the latest firmware update before you do anything else. We couldn't configure our review unit at all until we updated the software. With that housekeeping accomplished, we were on our way to streaming bliss. Although the EVA8000 has dual antennas, it's still limited to 802.11g speeds and cannot reliably stream high-definition video content without a wire, but it delivered excellent image and audio quality.

Like MediaGate's product, the EVA8000 can act as a USB host, but its port is conveniently located right up front. And unlike the MG-350HD, Netgear's box *can* stream digital photos and digital music at the same time (it loaded images much faster, too). In addition to support for all the usual audio, photo, and video formats, the box can also stream and decode FLAC and even audio encrypted with Windows Media DRM (rendering it compatible with subscription music services such as Yahoo, Urge, and Napster). It won't work with Rhapsody, however, because that service uses a DRM scheme all its own. It doesn't support WMA Lossless either.

The EVA8000's excellent user interface makes streaming content from the Internet stupid-simple, with direct links to (and great search tools for) movies and TV shows on BitTorrent's retail site, digital photo collections on Flickr, and every video on YouTube. (But if you find low-res videos hard to watch on a computer monitor, wait until you see them scaled up to 1080p on a big-screen TV—not good.)

NETGEAR HD EVA8000

+ THE PERFECT STORM

Interface support for popular Internet media; program guide and PVR for PC TV tuners.

− POSEIDON

No Rhapsody support; crashed once during testing.

9

MAXIMUM PC KICKASS

$350, www.netgear.com

Media Player Playoff

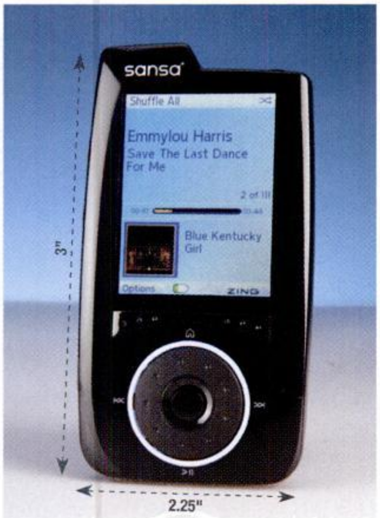
Craving innovation? Look beyond the iPod

Media players—other than Apple's largely overrated iPods, that is—are rapidly approaching commodity status. Cowon and SanDisk have taken very different approaches by adding features that set their products apart from the hundreds of others crowding store shelves.

—MICHAEL BROWN

SANDISK SANSA CONNECT 4GB

Microsoft's idea of letting people share their favorite songs using a wireless connection was as botched in execution as it was brilliant in conception. SanDisk's Sansa Connect makes much more sense, although it requires users who want to share to cough up the $12- to $15-per-month subscription fee for Yahoo's Music Unlimited to Go service.



The control wheel and buttons on the Sansa Connect have been improved in every way over previous Sansa models.

Unlike the Zune's silly wireless-sharing capability, the Sansa Connect's networking feature is useful, even if you're not interested in sharing or renting music. The device can join any Wi-Fi network (with support for WEP, WPA, or WPA2 security, but not Enterprise authentication) and it uses two free Yahoo services: Launchcast Internet radio and the Flickr photo-sharing service.

The Internet radio service is particularly cool because it uses the Zing Mobile Entertainment Engine to automatically create playlists based on the songs you've listened to. This works much like the Internet services Pandora and Last.fm do on the PC, and it's a terrific way to discover new artists.

Although the Sansa Connect sounds very good, we do wish SanDisk hadn't limited the player to just MP3, WMA, and secure WMA audio formats at maximum bitrates of 320Kb/s VBR. We find ourselves increasingly enamored with the pristine quality of losslessly encoded music (FLAC, WMA lossless, etc.), which it doesn't support at all. We do understand the file-size drawbacks: The Tower of Power tune "What Is Hip?" requires about 8MB of storage when encoded (using EAC and LAME) in MP3 format at 320Kb/s VBR, compared to nearly 36MB when encoded using EAC and FLAC.

SANDISK SANSA CONNECT

DOWN TO THE NIGHTCLUB

Wireless networking, Internet radio, great user interface.

COPACABANA

Limited codec support, no support for lossless formats.

9

MAXIMUM PC KICKASS

$250, www.sandisk.com

We dig the Cowon's D2's comprehensive file-format support, and the display is gorgeous; it's just not big enough to be a touch screen.

We dig the wireless networking feature and it sounds fabulous at the bitrates and file formats it does support. SanDisk tells us they *could* support lossless formats with a firmware update, so we're hoping to see that in the next go-round.

COWON D2

Cowon provides a wealth of choice where SanDisk sets severe limits: The D2 supports not only MP3, WMA, and secure WMA, but also OGG, FLAC, and even WAV.

But if you're planning to fill your player with losslessly encoded tracks, drop the extra $30 for the model with 4GB of flash memory. Both players include an SD slot, which renders their storage capacity virtually unlimited, but 2GB is just not enough for a large library of tracks encoded with even a lossy codec.

The D2 doesn't have anything as unique as wireless networking, but it does offer several features the Sansa Connect does not, including video support (320x240 resolution), voice recording, a text reader, and an FM radio tuner. The D2 also features a slick touch screen, but navigating a GUI in three square inches is awkward with the included stylus and nearly impossible with your fingertips. (The stylus can also serve as a kickstand while you're watching videos.)

The D2 is supremely versatile, it sounds fabulous, and it's certainly priced right. Oh, what we wouldn't give to trade its highfalutin touch screen for a simple control wheel and a couple of buttons.

COWON D2

LOOKING FOR SOME TUSH

Support for all types of media, including lossless audio formats.

PUSH YOUR TUSH

Not enough built-in memory.

8

$190, www.cowonamerica.com

SPECS

	SANSA CONNECT	COWON D2
CAPACITY	4GB Flash plus MicroSD slot	2GB Flash plus SD slot
AUDIO FILE FORMATS	MP3, WMA, Secure WMA	MP3, OGG, FLAC, WAV, WMA, Secure WMA
MAX AUDIO BIT RATE	MP3: 320Kb/s VBR	320Kb/s VBR
FM RADIO TUNER	No	Yes
VIDEO FILE FORMATS	N/A	WMV 9, MPEG 4
IMAGE FILE FORMATS	JPEG, PNG	JPEG
SCREEN SIZE (INCHES)	2.2	2.5
TOUCH SCREEN	No	Yes
WI-FI	802.11b/g	N/A

March of the Midsize LCDs

The 22-inch screens just keep on coming. Is this a good thing?

In our June issue, we looked at a trio of 22-inch LCDs and concluded that their bargain price tags came at the cost of image quality. All three of the screens sported 6-bit color with frame-rate control (FRC), which is intended to simulate 8-bit color performance at a lower cost, but we found them inferior to our favorite 8-bit panels. This month, we look at two more 22-inch models to determine whether the category is a complete wash.

—KATHERINE STEVENSON

Samsung's 226BW is just like all the other 6-bit panels we've reviewed—mediocre.

HANNS.G HW223DPB

An LCD's spec sheet isn't likely to mention the use of 6-bit color with frame-rate control; it's up to you to deduce it. In some cases, you'll find that the color spec isn't even mentioned. This in itself can be a clue, but it's not proof—dig further. If a spec is mentioned, bear in mind this distinction: An 8-bit panel is capable of producing 16.7 million colors; a 6-bit panel produces just 262,144 colors but uses FRC to create approximations of more, up to 16.2 million shades.

Newcomer Hanns.G doesn't make much of an impression with its HW223DPB.

Hanns.G's HW223DPB bears the telltale 16.2 million color spec. Granted, that's a whole lot of colors, and we really can't say this LCD is incapable of producing many, many distinct shades. In our high-res digital test photos, fine detail was accounted for, as were various subtle transitions in shades, and there were no signs of dithering—the obvious that often results from a limited color palette. But as we observed in our last batch of 22-inch screens, the overall picture was less rich and vibrant than what we've seen on high-end LCDs. Even more troublesome was the poor off-axis visibility. The picture is optimal at direct eye level, with some detail loss occurring at even the lower half of the screen. When we looked down on the screen from a standing position, the diminished picture quality was especially startling. When viewed from the side, there was a loss of contrast and lighter colors took on a yellowish cast.

The HW223DPB is labeled as "HD ready," but the display was incapable of displaying a commercial high-definition disc from our Blu-ray drive. It turns out the tag refers to the screen's ability to play 1080p content via an included component-to-DVI cable—in other words an analog stream from, say, a console or set-top disc player. HDCP is not supported. Frankly, we wouldn't buy any device that requires us to trust that analog streams will remain unregulated by content providers.

The HW223DPB's cabinet is unremarkable in looks and adjustment options (it has only forward and back tilt), but it does come with four built-in USB ports and the onscreen display options are well rounded. This LCD is tied with Dell's E228WFP (reviewed in June) as the least expensive 22-inch screen we've tested, and of the two, Dell's is the better option.

HANNS.G HW223DPB

6

BANANA BREAD
Inexpensive, good grayscale performance, OK for gaming.

BANANA SLUG
Bare-bones build, poor vertical off-axis, no HDCP.

$330, www.hannsg.com

SAMSUNG 226BW

Initially we thought Samsung's 226BW might rise above the pack in the 22-inch category. This LCD boasts 16.7 million colors, suggesting superior 8-bit technology. But when we did side-by-side testing next to the Hanns.G model, we were mightily surprised by the similarities. Sure enough, further inquiry revealed the 226BW to be a 6-bit panel just like all the others. But Samsung says its special Hi-FRC tech surpasses conventional FRC in color reproduction.

Be that as it may, we observed the same poor vertical off-axis visibility evident in other 6-bit panels (although horizontal off-axis was somewhat better), and the 226BW's grayscale performance was actually weaker on the light end of the scale than the Hanns.G's.

The $100 premium Samsung charges over Hanns.G's model gets you fancier trim and HDCP support. Like the Hanns.G, the picture is serviceable—but nothing special—and the screen is free of any image artifacts in games.

SAMSUNG 226BW

7

POTATO CHIPS
Inexpensive, OK for games, supports HDCP.

POTATO BUG
Limited ergo options, poor vertical off-axis, so-so image.

$430, www.samsung.com

SPECS

	Hanns.G HW223DPB	Samsung 226BW
NATIVE RESOLUTION	1680x1050	1680x1050
INPUTS	DVI, VGA, 4 USB, Audio-in	DVI, VGA

Blasé about Blu-ray Burners

We review two new choices in a market that holds little interest for us

We're not saying a high-definition optical burner is a useless purchase these days, but only a select few folks can justify owning one. If data backup is your bag, you can't argue with the convenience of Blu-ray's large-capacity discs—25GB for single layer and twice that for double layer—but you can pitch a fit about media costs: $20 and $40 apiece, respectively. An external backup drive is a bargain by comparison. The most compelling reason we can think of for owning a Blu-ray burner today is if you have a high-def video camera and want to author your own HD discs—for yourself or other folks who own a Blu-ray player, natch.

Whatever your motivation, here's what we've learned about two of the latest models.

—KATHERINE STEVENSON

LaCie's d2 is actually a rebadged Panasonic drive, like the Plextor and IO DATA burners we reviewed in December 2006.

LITE-ON BD TRIPLE WRITER LH-2B1S

As far as Blu-ray burners go, Lite-On's Triple Writer comes across as the most forward-looking, with the simple inclusion of a serial ATA interface—a feature that's been sorely lacking in all the other Blu-ray drives we've tested. Really, it should be standard issue with any so-called next-gen device, as parallel support will only get more scarce over time.

Lite-On's Triple Writer is the only Blu-ray drive we've tested that sports a SATA interface.

The Triple Writer also stands out with an illuminated indicator strip across its front bezel that informs you of drive activity and whether it involves BD, DVD, or CD media. Maximum theoretical write speeds for the three formats are 2x, 12x, and 32x, respectively. A 2x BD burn speed is standard in today's Blu-ray drives; DVD and CD speeds are typically capped at 8x and 24x, respectively.

In our DVD burn test, the Triple Writer wrote 4.38GB of data to a single-layer DVD+R in 7:09 (min:sec), besting all previously tested Blu-ray drives by a good two minutes. As expected, the TW was with the pack in BD-R burns, taking a leisurely 46:41 to fill a 25GB write-once disc, but its performance with rewriteable media surprised us. All the other drives we tested took approximately twice as long to write to BD-RE as to BD-R—the result of a data verification process. But Lite-On feels confident enough with its Triple Writer to have disabled verification in the drive in order to increase BD-RE write speeds. In our admittedly limited tests, we had no problems reading the TW's BD-RE discs.

In fact, taking into account the TW's relatively low price, its SATA interface, and its superior CD and DVD write speeds, the Triple Writer is the closest thing to something we might buy—not that we're even considering it.

BENCHMARKS

	LITE-ON	LACIE
DVD WRITE SPEED AVERAGE	**8.95x**	6.78x
DVD READ SPEED AVERAGE	**9.36x**	6.16x
ACCESS TIME (RANDOM/FULL)	**138ms/216ms**	159ms/305ms
CPU UTILIZATION (8X)	**31%**	44%
TIME TO BURN 22.5GB TO BD-R (MIN:SEC)	46:41	**45:31**
TIME TO BURN 22.5GB TO BD-RE (MIN:SEC)	**46:36**	99:39

Best scores are bolded. All tests were conducted using the latest version of Nero CD-DVD Speed. Our test bed is a Windows XP SP2 machine, using a dual-core 2.6GHz Athlon 64 FX-60, 2GB of Corsair DDR400 RAM on an Asus A8N-SLI motherboard, an ATI X1950 Pro videocard, a Western Digital 4000KD hard drive, and a PC Power and Cooling Turbo Cool 850 PSU.

LITE-ON BD TRIPLE WRITER LH-2B1S

+ BLUE VELVET
SATA interface, better-than-average CD/DVD specs, lowest price.

− BLUE LAGOON
Still expensive, limited usefulness, BD burns take a long time.

8

$600, www.liteon.com

LACIE D2 BLU-RAY DRIVE

Like the Plextor PX-B900A and the IO Data BRD-UM2/U that we reviewed in December 2006, the d2 is actually a Panasonic-manufactured Blu-ray burner. The drive is encased in a LaCie-branded brushed-metal shell that offers both USB 2.0 and FireWire connectors. Roxio's Easy Media Creator 8.2 comes bundled with the package.

As with all the Blu-ray drives we've tested, other than the Lite-On above, the d2 is spec'd to write CD, DVD, and BD at maximum speeds of 24x, 8x, and 2x, respectively. And not surprisingly, the d2 turned in benchmark scores that were right in line with its similarly spec'd brethren: 9:08 (min:sec) to write to DVD+R, 45:31 to fill a 25GB single-layer BD disc, and 99:38 to fill a rewriteable (BD-RE) disc of the same capacity. Indeed, there is nothing especially noteworthy about the d2, besides the fact that it costs $400 more than Lite-On's Triple Writer.

LACIE D2 BLU-RAY DRIVE

+ BARNEY RUBBLE
USB and FireWire interfaces are convenient.

− BURNING RUBBLE
We should pay this much money to watch the paint dry during Blu-ray burns?!

6

$1,000, www.lacie.com

M-Audio Studiophile AV 40 Speaker System

Funk good. Funky bad

M-AUDIO
M-AUDIO

M-Audio's Studiophile AV 40 speakers have both 1/4-inch balanced and RCA inputs in back; there's a 1/8-inch stereo input and headphone jack in front.

Considering their $200 price tag, it's amazing to see how many professional features M-Audio's Studiophile AV 40 reference monitors are packed with, including 1/4-inch balanced inputs that can accommodate long cable runs. But you know the company had to make some compromises—and we found out where the moment we turned the speakers on.

At first, we attributed the low-level hum we heard from the amplifier to a ground loop, which can occur when components with different ground potentials are connected. But after connecting two other systems to the same outlets, we concluded the problem was with the amp. We returned the speakers to M-Audio, and the replacement set we received was a little quieter, but we still detected a funky buzz when we pressed our ear to the driver. If you're using these speakers for recording, mixdown, or other critical listening tasks, the noise will haunt you because you won't know if it's coming from your instruments, your mic, or some piece of outboard gear.

The AV 40s do exhibit a characteristic that is essential for any speaker laying claim to the "studio monitor" moniker: pancake-flat frequency response that doesn't add to, subtract from, or otherwise color recorded music. The 20-watt-per-channel class A/B amplifier is well suited for near-field listening, but if you also want to use the system for recreational listening or even gaming, simply flip the bass-boost switch on the back and be rewarded with just a little more thump in the low end. Even in this mode, bass response is far short of what M-Audio's subwoofer-equipped Studiophile LX4 system dishes out, but it's impressive for monitors in this price range.

Listening to the power funk of Tower of Power's "Oakland Stroke," we were impressed by the AV 40s's ability to deliver the band's full sonic spectrum, from the belch of Stephen "Doc" Kupka's baritone sax to the crackle and snap of Dave Garibaldi's drum work. But we'd score these speakers much higher if the amp were quieter.

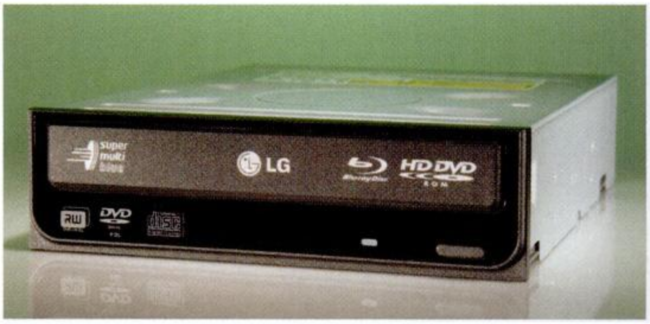
—MICHAEL BROWN

STUDIOPHILE AV 40 **7**

$200, www.m-audio.com

LG GGW-H10NI Super Multi Blue

Blu-ray and HD DVD capabilities in a single drive



With LG's Super Multi Blue, you won't have time to eat a full-course meal while your Blu-ray disc is burning.

Before you get too excited about LG's combo optical drive, bear in mind that while the GGW-H10NI Super Multi Blue can read both Blu-ray and HD DVD discs, it can write to only the former format. Still, this drive offers a degree of flexibility that no other next-gen drive we've tested has. You won't be shut out of watching movies from studios that have allied themselves with just one of the high-def formats. Not surprisingly, this luxury doesn't come cheap. At $1,200, the Super Multi Blue costs more than your average Blu-ray burner—by as much as $600.

But here's something else that makes this drive special: 4x BD-R burns. The other Blu-ray burners we've tested have been capped at 2x speeds when burning to single-layer high-def media. In real-world terms, 4x amounts to a significant time savings. Using LG's drive, we burned 22.5GB of data to our disc in 27:27 (min:sec). Granted, that's hardly speedy, but it's half the time it's taken us with other drives. When burning to rewriteable media (BD-RE), the Super Multi Blue took 45:11 to fill a single-layer disc, while the competition typically takes more than 90 minutes to complete this task. (The exception is the Lite-On LH-2B1S that we reviewed in our July issue, which lacks a data-verification feature commonly employed for BD-RE situations—see chart below.)

BENCHMARKS

	LG	LITE-ON
DVD WRITE SPEED AVERAGE	6.67x	**8.95x**
DVD READ SPEED AVERAGE	7.61x	**9.36x**
ACCESS TIME (RANDOM/FULL)	190ms/374ms	**138ms/216ms**
CPU UTILIZATION (8X)	**30%**	31%
TIME TO BURN 22.5GB TO BD-R (MIN:SEC)	**27:27**	46:41
TIME TO BURN 22.5GB TO BD-RE (MIN:SEC)	**45:11**	46:36

Best scores are bolded. All tests were conducted using the latest version of Nero CD-DVD Speed and Verbatim media. Our test bed is a Windows XP SP2 machine using a dual-core 2.6GHz Athlon 64 FX-60, 2GB of Corsair DDR400 RAM on an Asus A8N-SLI motherboard, an ATI X1950 Pro videocard, a Western Digital 4000KD hard drive, and a PC Power and Cooling Turbo Cool 850 PSU.

Like most of the other Blu-ray burners we've tested, the Super Multi Blue is spec'd for 8x DVD burns. Consequently, it took us 10:09 to write 4.37GB of data to a DVD+R disc. That's not as fast as Lite-On's burner, which is spec'd at 12x, but then again, Lite-On's drive can't hold a candle to LG's BD-R speeds. That fact, combined with this drive's dual-format HD reads and its future-proof SATA interface are the reasons we picked the Super Multi Blue for this year's Dream Machine (see page 24).

—KATHERINE STEVENSON

LG SUPER MULTI BLUE **9**

$1,200, www.lge.com

The Great NAS Box Transfer-Off

If you aren't using an Ethernet cable for your external storage boxes, you just aren't cool

We very much appreciate the work internal hard drives do to give us additional space for our games, home movies, and cat pictures, but the days of stuffing all our storage into a case have long since passed. Connected external drives are just the tip of the iceberg, however, as we're looking at the real gems this month—network-attached storage devices.

WESTERN DIGITAL MY BOOK WORLD EDITION II

We fondly recall reviewing this unit's connected brother in arms, the My Book Pro Edition II (March 2007). The products are virtually identical, featuring two 500GB hard drives locked in a RAID 0 configuration that gives you one honkin' terabyte of space. The difference, of course, is that you access the World Edition II through an Ethernet cable instead of a FireWire or USB connection.

If you enjoy holding down a power button for more than 20 seconds just to shut off a device, you'll love WD's My Book World.

HAMMER
STORAGE

It's a bit ugly, but Hammer's Myshare gets the job done with simple, unabashed speed.

A little piece of software called MioNet serves as the gateway between your computer and this NAS box. We love how it effortlessly allows you to share folders from your My Book with anyone you want via an awesome web-based interface. But that's all it does unless you want to open up your wallet. Yes, that's right, to share folders that are on your computer and access other functions, like remote login to any PC with MioNet installed, you have to pay the piper—$7 a month or $65 a year. Say it slowly now: What. The. Hell.

Worse still, we have good reason to believe that MioNet cripples the My Book's performance. It takes the My Book forever to load up and be recognized by the program, and sometimes the connection doesn't even occur. For some strange reason, the drive won't show up in Windows Explorer but will be accessible through the Manage Devices option in MioNet.

Considering it took an average of 12:42 (min:sec) to transfer 3.6GB (475 files), we remain thoroughly unimpressed with the My Book World. A pity, really; we had such high hopes.

WESTERN DIGITAL MY BOOK

5

NELLY

MioNet has some pretty amazing features, and the My Book has a wonderfully simple exterior.

R KELLY

You have to pay *how* much for services that are easy or free to implement?

$500, www.wdc.com

HAMMER STORAGE MYSHARE

When we first got the Myshare into the Lab, we were a bit taken aback by its simplicity. There's no fancy software to accompany the 500GB device; it's actually two 250GB drives striped using RAID 0. If you want to access the Myshare, you have to go through Windows Explorer, just as you would with any other network drive.

This route might be less sexy than a software-themed interface, but man, does it work. We nearly spit on the ground with joy when the Myshare was loaded and ready to go in less than 10 seconds—a far cry from the agonizingly slow Western Digital device previously reviewed. And in our highly scientific "transfer a lot of stuff" test, we were able to toss over a 3.6GB chunk of files in an average time of 5:13 (minutes: seconds). That, dear readers, is awesome.

Admittedly, 500GB of space isn't a groundbreaking achievement in storage. But that's just what this edition of the Myshare offers; Hammer Storage is already selling versions with up to 1.5TB of space, and a 2TB edition should be ready by the time you finish reading this very sentence. Have fun transferring every file you have to the device. You won't even need an entire weekend to do it.

HAMMER STORAGE MYSHARE

9

INTEGERS

Speedy transfers, can share printers using the device, automatic USB-based backup, loads quickly.

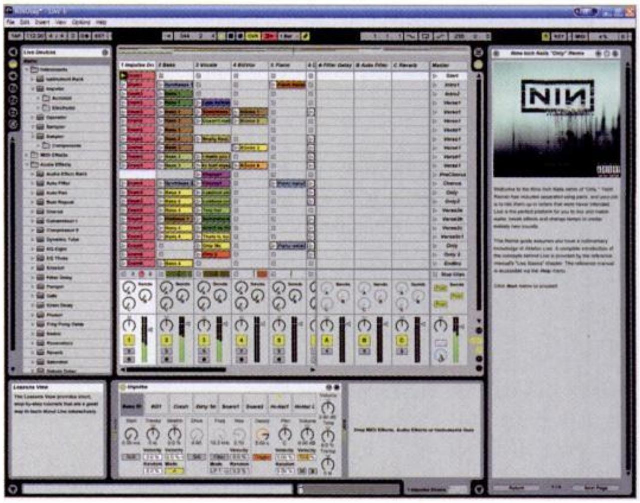
NATURAL NUMBERS

Web-based interface might be tricky for newbs. Nothing pretty to look at.

$350, www.hammer-storage.com

Expensive Music-Making

Making your own jams is an awesome, and awesomely expensive, hobby



Editing a track in Ableton Live 6 can be as simple as mixing and matching blocks of loops.

Hey there, you fancy musically inclined person, you. We've reviewed a few bare-bones, low-priced music apps, and now it's time to tackle the big guns. Yes, that's right. These programs will set you back a pretty penny—60,000 pretty pennies, in fact. They have everything the budding composer or aspiring DJ needs, but are they worth the cash for the average Janes and Joes of the computing world?

—DAVE MURPHY

FINALE 2007

Staff paper be damned, we say. This Beethoven-in-a-box is one of the most popular music-creation utilities available for the Windows platform, and it's easy to see why. A nigh-limitless level of helpfulness and customizability has existed throughout Finale's many incarnations, and the 2007 edition of the score-creator ups the ante even further. The program not only blends elements of sound-board mixing directly into its notation interface but also comes with a large collection of helpful videos—gone are the days of having to scour through PDF help files just to figure out the basics.

Our biggest criticism of Finale, aside from its outrageous price, is that the program hardly seems like much of an upgrade from Finale 2006. Granted, Finale 2007 includes the awesome Garritan Personal Orchestra, which gives you way more realistic MIDI sound than your standard MIDI samples. Still, Finale 2007 is what Finale's always been—same ol' interface, same ol' note input. Only now, you get to contend with slowdown and finicky stability as a result of the extras.

As a stand-alone product, you really can't get much better than Finale 2007, but only if you're a first-timer to the experience. Composition noobs and people who just want to transcribe "Brick" might best benefit from Finale's less feature-soaked (and one-third cheaper) cousin, Allegro.

FINALE 2007

ROCKING THE SUBURBS

It couldn't be easier to create music in any shape or form you want.

ROCKING THE FARM

Taking out a second mortgage just to make piano jams isn't very fun. Go find a cheap copy of Finale 2006.

8

$600, www.finalemusic.com

ABLETON LIVE 6

You can do so much with Live 6, it's hard to know exactly where to begin describing this masterful software sequencer. So we'll start at the top. With just a few clicks of an in-application help system, we were up and running with the program's Operator add-on, creating notes and beats that sound as though they were pulled straight from a Keith Schofield music video. Awesome.

While the program references a number of functions that are a lot to swallow for a beginner—filter frequencies, resonances, waveshapes—the simple interface encourages the ol' "try it" approach to learning the program. That said, audio enthusiasts will find plenty of opportunity for experimentation under Live 6's hood: You can create your music using a MIDI-attached keyboard, directly edit the MIDI notes within your loops, and then change up your beats with a ton of plugin-style effects.

Live 6 would benefit from a better navigation system to simplify accessing its many functions, and the drab gray program needs some Apple interface treatment. But these are paltry concerns for such a sweet, learner-friendly music application.

ABLETON LIVE 6

LIGHT-SWITCH RAVE

Fun to tinker around with, even if you have no audio-creation experience whatsoever.

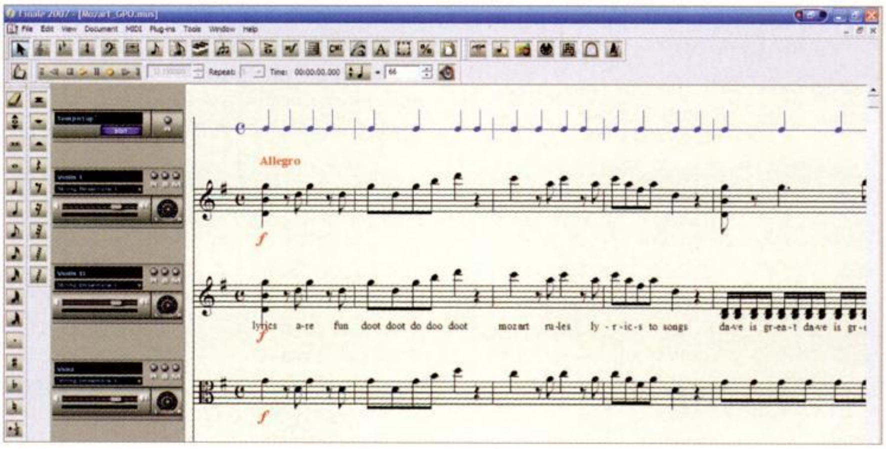
PACIFIERS

Could stand an interface overhaul; a few more tutorials would be nice.

9

MAXIMUM PC KICKASS

$600 box, $500 download www.ableton.com


Allegro
lyrics a-re fun doot doot do doo doot mozart ru-les ly - r - ic - s to songs da-ve is gr-ea-t da-ve is gr-

If only history's greatest composers had had access to Finale 2007's music tools.

Corsair 16GB Flash Voyager

This little key can swallow more data than a dual-layer DVD disc

Corsair pushes the 16GB boundary with its affordable Flash Voyager key.

Ain't technology wonderful? Just a few years ago our mouths were agape at 1GB USB thumb drives that cost $500. Yet here we have Corsair pushing the 16GB mark for $140—a mere $8.75 per GB.

The Flash Voyager looks the same as previous models, except for its color. The standard-speed device is blue, while the faster GT model is red. Although the rubberized case gives the unit a fairly rugged feel, we have torn through the rubber key-ring loop on older units. Oddly, no driver or encryption software was included with our device. Corsair normally bundles the open-source TrueCrypt software with its products, which is passable though inconvenient.

In performance, the fat Flash Voyager is an interesting story. Of the seven keys we've tested recently, the 16GB Flash Voyager is the second fastest in small-file writes, taking about eight minutes to write 10,315 files. The stupendously fast Kingston 4GB Secure Traveler took three minutes, while the rest of the pack clocked in with scores of 20 minutes or more.

The Flash Voyager's biggest weakness is in writing medium and large files. The key took 4:10 (min:sec) to write about 2GB of large files, which was almost a minute slower than even the hard-disk-based Verbatim Store 'n' Go we reviewed last month.

The 16GB Flash Voyager also trailed the Verbatim in writing medium-size JPG files. Not pretty. Payback came in read speeds, as the Flash Voyager aced the small-, medium-, and large-file reads, achieving speeds equal to those of the fastest keys we've benchmarked.

So what you have is a key that reads files very quickly and is pretty good at writing small files but could take a minute longer than a hard-disk unit and almost four times longer than the Flash Voyager GT to write large files, which is odd because a 16GB key seems as though it were made to write huge ISO and image files, not read gigabytes of text files. We don't think the medium- and large-file write performance is terminal, but it certainly doesn't reach the yee-haw speeds of its red-cased brethren.

—GORDON MAH UNG

CORSAIR 16GB FLASH **8**

$180, www.corsairmicro.com

Thermaltake 7-Inch Touch Screen LCD Monitor

A secondary LCD can sometimes be better than a real monitor

You will squeal with delight the first time this seven-inch display pops out of its enclosure, eagerly awaiting your greasy fingers.

You're still using *one* monitor? That is so old school we're not even going to offer a snarky comment about it. Nope. Not a word. But if you don't have the desk space for a second display, Thermaltake has you covered. The company's seven-inch LCD monitor is an awesome addition to your rig—with the caveat that unless you have a matching Thermaltake case, you're likely SOL.

As a supplemental display, Thermaltake's seven-incher is almost a full-fledged monitor, although the unit's small size and meager 1280x1024 resolution somewhat distance it from what we would typically use. The display itself is a retractable touch screen—something you rarely see on car displays, let alone computer displays.

Installing the display is as easy as stuffing the device into a seven-inch drive bay, wherein we find its biggest fault. Do *you* have a seven-inch drive bay in your case? We sure don't—not in any of the chassis in our Lab, save for Thermaltake-branded designs. Unless you're skilled with a hacksaw, purchasing this monitor will require you to pick up a new case as well, which is a total letdown since it's such a sweet device.

Simply put, although it's pricey, the Thermaltake display is light-years beyond anything else out there, save for actual touch-screen-based computers. And controlling your computer by tapping your finger is simply too fun. Cooler still, you can plug standard RCA cables into the back of the unit. Control a DVD playing on your main monitor using the touch screen; then switch to a game of Wii Tennis during the boring parts. Life just doesn't get much better than that.

We'll be waiting with bated breath for Thermaltake to release a version of this monitor that isn't tied to its cases. (Though we highly doubt that day will ever arrive.) You're certainly getting more than you bargained for with the seven-inch display, just prepare for some additional purchases.

—DAVID MURPHY

THERMALTAKE MONITOR **8**

$350, www.thermaltakeusa.com

Flip Video 1GB

Shooting casual video doesn't get any easier than this

2.3"
4.1"
Flip video

This camera is so easy to operate a Mac user could handle it.

It seems that most people would want to use a high-def video recorder to document their growing families or Star Wars action-figure collections, but can a case be made for purchasing a low-res camera? At 640x480, the Flip Video's resolution isn't VideoCD low, but you won't stun your family when you proudly display your movies on a 60-inch, 1080p set.

Of course, this camera isn't for a Blu-ray or HD DVD audience—it's for the YouTube generation, which thinks that a horribly pixelated, low-resolution video is just dandy. Featuring 1GB of internal flash memory, which is good for one hour of video (a 512MB version is also available), the AA-powered Flip Video is about as simple to operate as a tape recorder. White balance? Fuhgetaboutit. You get record, play, and a mediocre digital zoom.

To get your video to your PC, you swing out the built-in USB connector and jack in to your rig. You can directly copy the videos to your PC, or if you really want the newb experience, you can fire up the app that's stored on the unit, a simple web-based interface that lets you view, edit, or share your videos. You can upload directly to YouTube or Grouper.com from the device and send an email notification to your friends and family that you have posted a new video. One caveat—doing so appends a commercial for the Flip Video to the end of your clip. Hey, if they're going to do that, shouldn't they be paying us?

Normally, we'd hold our noses at a low-res device that looks like something you'd find at the bottom of a box of Cap'n Crunch, but even the video snob in us found it hard to hate the Flip Video. And at $150, you won't think twice about using it as you're thundering down Splash Mountain.

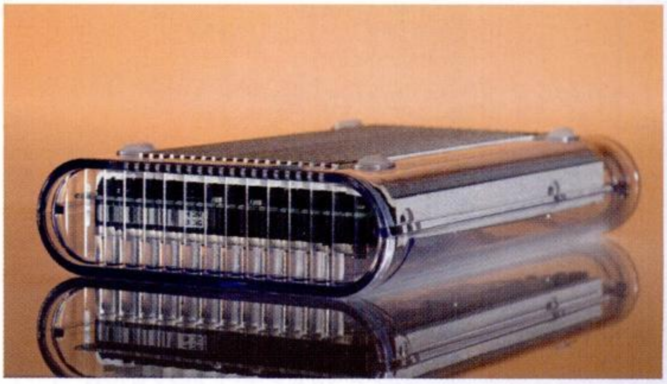
Our only problem with the Flip Video is that newer point-and-shoot digital cameras offer competitive video resolutions as well as superior still imaging. However, those still cameras cost at least twice as much as the Flip Video and aren't as easy to use.

—GORDON MAH UNG

FLIP VIDEO 1GB **8**
$150, www.theflip.com

OWC Mercury On-the-Go External Drive

If only there were a way to make this external hard drive go a bit faster



You can definitely fit this drive in the back pocket of your jeans; now that's real-world testing.

There are three schools of thought concerning external storage solutions: build an oversized bookend that rocks out with huge amounts of storage, sculpt a supremely portable device that you'd actually want to carry around, or just make a plain-vanilla enclosure. OWC's Mercury On-the-Go drive is a surprise contender in the second category, as it's a delightful combination of portability and speed.

OWC has a number of models available; the one we tested features USB and FireWire connections, with an included 160GB Seagate Momentus 7200.2 SATA drive as the main source of storage. Firing up our tried-and-true HD Tach tests, we were pleased to see the device performing admirably on both its USB and FireWire 400 connections.

In essence, the Seagate drive fills the pipe. Connecting the clear external device via USB supplied us with an average read speed of 35.7MB/s, which is very near the maximum real-world throughput for USB 2.0. We saw a small boost in speeds when using the FireWire 400 connection, but the mere increase of 5MB/s for the average read speed is nothing to write home about.

BENCHMARKS

	ON-THE-GO USB 2.0	ON-THE-GO FIREWIRE 400
HD TACH RANDOM ACCESS (MS)	15	14.2
HD TACH AVERAGE READ (MB/S)	35.7	40
HD TACH BURST SPEED (MB/S)	38	43.1

Our current desktop test bed is a Windows XP SP2 machine using a dual-core 2.6GHz Athlon 64 FX-60, 1GB of OCZ DDR400 RAM on an Asus A8N32-SLI motherboard, a EVGA GeForce 7950GT videocard, a Western Digital 4000KD hard drive, and an Enermax Galaxy 1000W PSU.

That said, our biggest complaint with this particular model is that there's really no way to maximize the 7,200RPM drive's capabilities. Sure, you can connect to the enclosure via FireWire 800, but who has a FireWire 800 connector on their PC? We don't even have one in the Lab. An eSATA connection should be a staple for all enclosures like this; why bother with FireWire 800?

The drive is geared for people on the go, which we're assuming means "people of the laptop variety." Still, we were a bit taken aback by the short length of the included transfer cords. Details are important, OWC; the Mercury On-the-Go is great, but a little tweaking would a Kick Ass make.

—DAVE MURPHY

OWC MERCURY ON-THE-GO DRIVE **8**
$280, www.otherworldcomputing.com

Continued from page 96

addressed each pixel one at a time according to its position on the grid. The drawback to this approach was that each pixel had to maintain its state in between refreshes without a steady electrical charge. As displays became larger, poor response times and limited contrast became significant issues.

Manufacturers developed active-matrix technology to solve the problem, with the thin-film transistor (TFT) being the most common type. These displays consist of a grid of transistors arranged in rows and columns over the polymer layers. Apply a positive charge to one row of transistors and a negative charge to one column, and the transistor at the intersection will receive the largest amount of voltage and switch its associated pixel on. If a transistor fails to switch on when voltage is applied—or if it fails to switch off when voltage is removed—the pixel it's controlling will remain either dark or lit, creating what's known as a "dead" or "stuck" pixel, respectively.

Backlighting increases the LCD's overall brightness, but the source of this illumination must be small enough to fit in the limited space available inside the monitor's frame. Desktop displays often utilize one or more fluorescent tubes at the screen's top, bottom, or vertical edges; laptops typically use miniature cold cathode fluorescent lamps for this purpose. In both cases, a diffusion panel behind the screen scatters the light in an effort to ensure that the display remains uniformly bright.

COLOR MY WORLD

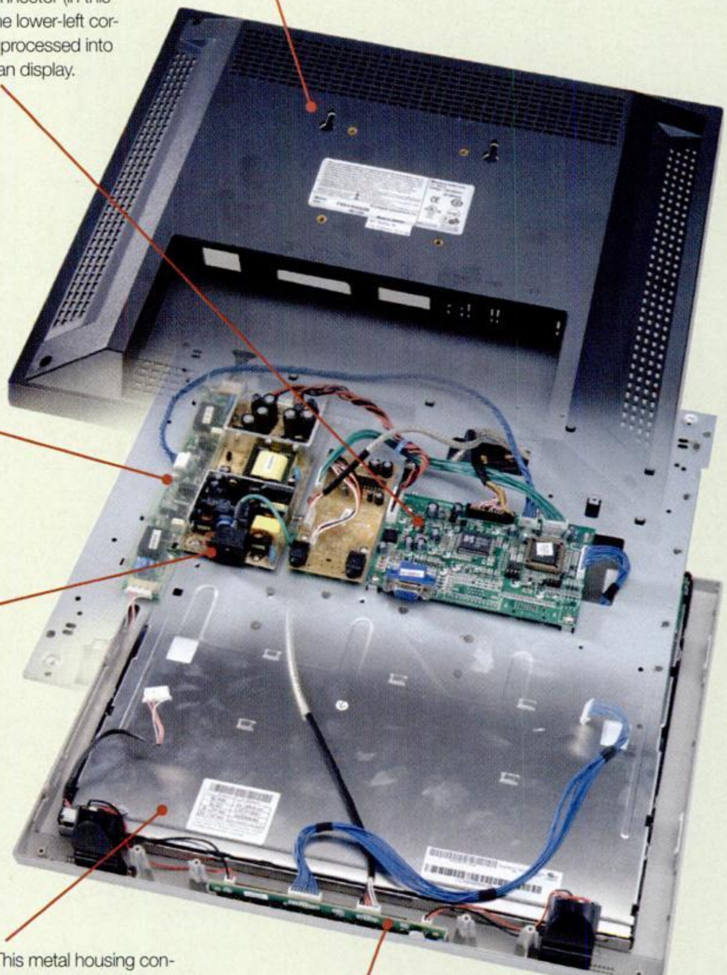
Black-and-white displays have very limited appeal, so the vast majority of LCDs are color. In these types of displays, each square pixel actually consists of three rectangular subpixels (one red, one green, and one blue). A monochrome display is capable of producing 256 levels of brightness, which translates to 256 shades of gray. A color display, in turn, can produce 256 shades of red, 256 shades of green, and 256 shades of blue to deliver the familiar palette of 16.8 million colors. Combining all available colors produces white, while the absence of any color produces black.

LCDs invariably exhibit one major limitation: They look their best only when displaying an image at their native resolution (meaning a fixed resolution corresponding to the actual number of pixels in the display). If you feed a 1280x1024 LCD a video signal consisting of a 1024x768 resolution, for instance, the monitor will scale that image up to fill its native resolution, introducing visual artifacts in the process. For this, and a few other reasons, many purists and graphics professionals continue to snub LCDs in favor of CRTs. But most computer users, gamers included, find modern LCDs to be as good or better than the bulkier CRTs.

Hardware Autopsy

LCD Monitor

Don't let its slim figure fool you; a typical LCD desktop display is home to a lot more than just a skinny screen



BACKING An LCD's backing sits squarely atop a cluster of PCBs assigned with various functions. Small holes around the perimeter of the backpiece promote airflow to these electronic parts; larger holes, shown here at the indented midsection, provide openings for the ports (DVI, VGA, power, etc.) that make it possible for your PC to interface with the device.

CONTROL BOARD This green PCB receives a signal from the videocard, by way of the VGA connector (in this example) located at the lower-left corner. Here the signal is processed into something the LCD can display.

BACKLIGHT CONTROLLER When you make adjustments to a screen's brightness via the onscreen display, the information is sent to the backlight controller by way of the control board.

POWER SUPPLY An alternative to a power brick, a built-in power supply converts AC power from the wall socket into DC power the monitor can use.

LCD MODULE This metal housing contains the backlight and the LCD glass. The signal from the control board is fed to a PCB that spans the top edge of the LCD module (not visible here) and which contains the LCD controller, driver, and temperature compensation circuitry.

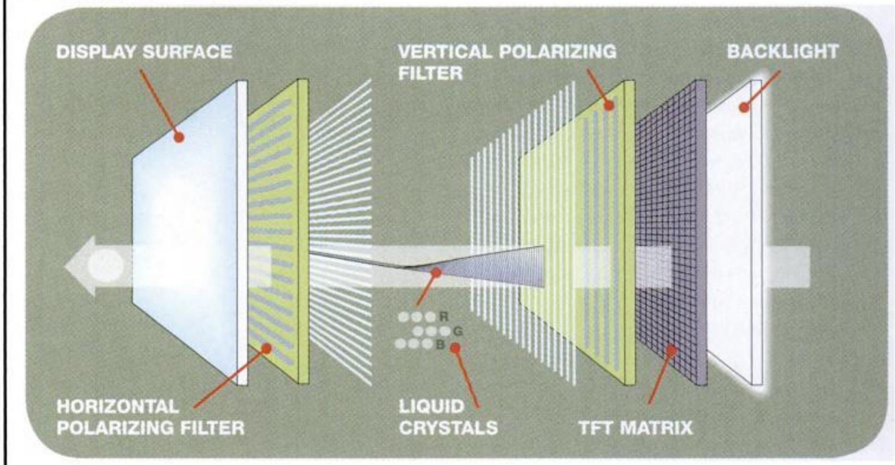
FRONT-PANEL CONNECTOR This narrow PCB directly connects to the buttons along the bottom-front of the monitor—those used to control brightness, contrast, color adjustments, etc.—and sends a signal, based on a user's input, to the control board.

How It Works: The Color LCD

Who'd have guessed that a botanical discovery from the 18th century would lead to the development of one of the most popular display technologies of the 21st?

BY GORDON **GOBLE**

HOW IT WORKS **A liquid crystal display**



Light passes from one liquid-crystal molecule to the next along a helix. Since it's oriented in the same direction as the second filter, the light reaches the display surface to create a white pixel. Apply electrical current and the helix straightens to become oriented opposite to the second filter. Now the light is blocked to create a black pixel.

Austrian botanist Friedrich Reinitzer first observed the melting behavior of a plant-derived material called cholesteryl benzoate in 1888. A surprised Reinitzer determined that the substance had not one, but two melting points. Reinitzer took his discovery to renowned German physicist Otto Lehmann, who investigated further and eventually named the phenomenon the liquid crystal state.

Practical applications for liquid crystals did not emerge until the 1960s, and it took until the last few years for liquid crystal displays to overtake their cathode ray tube counterparts in popularity. Just what makes this technology tick? The key lies with that plant material: cholesteryl benzoate. Reinitzer discovered that rather than melting from a solid state (in which molecules exist in an orderly, stationary fashion) directly to a liquid state (in which molecules roam about randomly), cholesteryl benzoate molecules detoured through a previously unknown, wholly unique state. While in that state, cholesteryl benzoate exhibits the orderliness of a solid—but also some of the movement of a liquid.

A POLARIZING CONCEPT

In optics, a liquid crystal is valued for its ability to affect light like a solid while also maintaining fluidlike malleability. But a liquid crystal doesn't produce light on its own, it merely redirects it; a light source is required if you're going to use the material to build a display. In an LCD, light is directed at two identically sized clear panes of glass placed back to back. The manufacturer outfits each pane with a polarizing filter on its exterior surface. One filter blocks the light source's vertical plane; the other, oriented at a 90-degree angle to the first, blocks its horizontal plane. A reflective surface is placed on the opposite side of the light source to bounce the image back to the viewer, but at this point, none of the light source makes it through because the polarizing filters block it on both planes.

Sounds strange, right? Actually, this is where the procedure gets interesting. The interior surfaces of both clear panes are coated with an electronically conductive polymer, which is rubbed on in one direction to create parallel microscopic "alignment" grooves. The grooves on the front panes are perpendicular to those on the rear pane. The final ingredient, the liquid crystal solution, is then sandwiched between the two coated panes.

A FISH STORY

This liquid-crystal solution is just a few rod-shaped molecules thick, and the molecules themselves maintain an orderly but pliable arrangement all on their own—not unlike a school of fish. One surface layer of molecules adheres to the tiny polymer grooves inside the first clear pane, and the other surface layer adheres to the grooves inside the second pane. The molecules in the middle form a loosely wound spiral between the two outermost layers

The first outer layer of polymer picks up the light as it passes through the first polarization filter. The light then moves from one molecule to the next along the spiral until it reaches the second outer layer of polymer, having twisted 90 degrees by the time it gets there. Since the light wave has now been twisted opposite to the orientation of the final polarizing filter, all the light passes through and a white pixel is created. Run an electrical current through the polymer and the spiral staircase of molecules will straighten slightly so that the final layer of molecules nearly matches the orientation of the final polarizing filter. Since some of the light is now able to pass through, a gray pixel is produced. Increase the amount of current applied to the polymer and the molecular spiral will straighten completely. Now all the molecules are not only oriented in the same direction, they're also oriented in the same direction as the polarizing filter. Since none of the light is able pass through the filter, a black pixel appears.

LCDs with a small number of segments—think of a digital watch or an electronic calculator—have a single electrical contact for each segment. However, this approach isn't practical for powering each of the millions of pixels in a computer monitor. In higher-resolution displays, the pixels are arranged in a matrix of rows and columns. In early passive-matrix designs, each row and column had a single electrical circuit, which

Continued on page 95

The higher resolution makes an LCD monitor easier on your eyes.
CDW's prices make it easier on your budget.

Samsung SyncMaster™ 275T

- 27" analog and digital widescreen LCD
- Contrast ratio: 3000:1
- Fast MagicSpeed™ 6ms response time
- Three-year limited parts and labor warranty, 48-hour advance exchange that includes shipping costs both ways

SAMSUNG

$1229.99
CDW 1194020

NEC MultiSync® LCD2090UXi-BK-SV

- 20.1" analog and digital LCD
- Contrast ratio: 700:1
- SpectraViewII™ Color Calibration Solution
- Rapid Response™ time: 16ms
- Four-year limited parts, labor and backlight warranty

NEC

$1249.99
CDW 993003

Sony KLHW26/ST

- 26" LCD with HD Tuner
- Contrast ratio: 1300:1
- Supports both video and PC timings
- HDMI™ Connection(s): two with audio input
- Two-year parts and labor, one-year panel warranty

SONY

$1499.99
CDW 1196415

We're there with the technology solutions you need.

A monitor is a monitor, right? Not when it's an LCD monitor. LCDs not only give you a better picture and save space, they also reduce eyestrain and save energy. At CDW, we're there with the industry's largest in-stock inventories and a wide selection of LCD monitors. So call today, and we'll ship them out fast. Because the sooner you get new monitors, the sooner you can see the benefits.

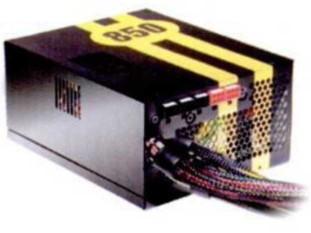
CDW.com | 800.399.4CDW

CDW®

The Right Technology. Right Away.™

Offer subject to CDW's standard terms and conditions of sale, available at CDW.com. ©2007 CDW Corporation

Copyrighted material



Take the lead with Antec's TruePower Quattro™! With up to 1000 Watts and four 12V outputs, the stylish and compact Quattro efficiently provides stable and reliable power for your powerful processors and multiple graphics cards. The TruePower Quattro™ is designed to meet the 80PLUS® certification which means that it consumes about 33% less energy than many equivalent power supplies, without any reduction in quality performance! All modular cables are sleeved and labeled to give your system a clean and professional look, and the racing stripe paint job adds the extra flair you need to leave everyone else in the dust. For more information, visit www.antec.com.

Antec®
The Power of You

BEST BUY · COMPUSA · Circuit City · J&R · MICRO CENTER · STAPLES · Fry's Outpost.com · amazon.com · buy.com · newegg.com

Copyrighted material